



Full wwPDB EM Validation Report ⓘ

Jul 9, 2025 – 01:14 PM JST

PDB ID : 8K59 / pdb_00008k59
EMDB ID : EMD-36898
Title : The cryo-EM map of TIC-TIEA complex
Authors : Zhang, K.N.; Liu, Y.; Chen, M.; Wang, Y.; Lin, W.; Li, M.; Zhang, X.; Gao, Y.; Gong, Q.; Chen, H.; Steve, M.; Li, S.; Zhang, K.; Liu, B.
Deposited on : 2023-07-21
Resolution : 3.50 Å(reported)

This is a Full wwPDB EM 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/EMValidationReportHelp>
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:

EMDB validation analysis : **FAILED**
MolProbity : 4-5-2 with Phenix2.0rc1
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : **FAILED**
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.44

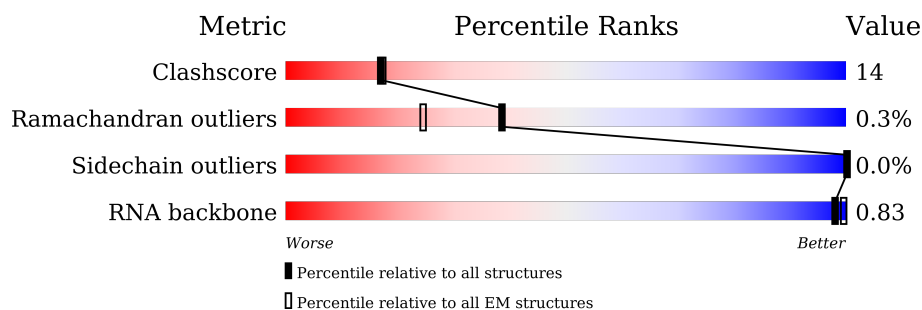
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.50 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)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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

Mol	Chain	Length	Quality of chain
1	C	1340	70% 30%
2	D	1363	69% 29% .
3	E	76	55% 45%
4	F	523	67% 23% 10%
5	A	231	72% 27%
5	B	231	67% 32% .
6	G	129	58% 41% .
7	I	61	62% 38%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
8	H	63	51% 49%
9	J	5	100%

2 Entry composition

There are 9 unique types of molecules in this entry. The entry contains 32740 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 DNA-directed RNA polymerase subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	C	1340	Total	C	N	O	S	0	0
			10570	6631	1841	2055	43		

- Molecule 2 is a protein called DNA-directed RNA polymerase subunit beta'.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	D	1352	Total	C	N	O	S	0	0
			10494	6587	1869	1988	50		

- Molecule 3 is a protein called DNA-directed RNA polymerase subunit omega.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	E	76	Total	C	N	O	S	0	0
			606	368	115	122	1		

- Molecule 4 is a protein called RNA polymerase sigma factor RpoD.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	F	472	Total	C	N	O	S	0	0
			3846	2408	685	730	23		

- Molecule 5 is a protein called DNA-directed RNA polymerase subunit alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	A	230	Total	C	N	O	S	0	0
			1788	1112	317	353	6		
5	B	228	Total	C	N	O	S	0	0
			1767	1100	312	349	6		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	6	THR	-	expression tag	UNP P0A7Z4

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	6	THR	-	expression tag	UNP P0A7Z4

- Molecule 6 is a protein called 15 kDa RNA polymerase-binding protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	G	129	Total	C	N	O	S	0	0
			1031	637	188	200	6		

- Molecule 7 is a DNA chain called DNA (61-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
7	I	61	Total	C	N	O	P	0	0
			1248	596	229	363	60		

- Molecule 8 is a DNA chain called DNA (63-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	63	Total	C	N	O	P	0	0
			1283	613	227	381	62		

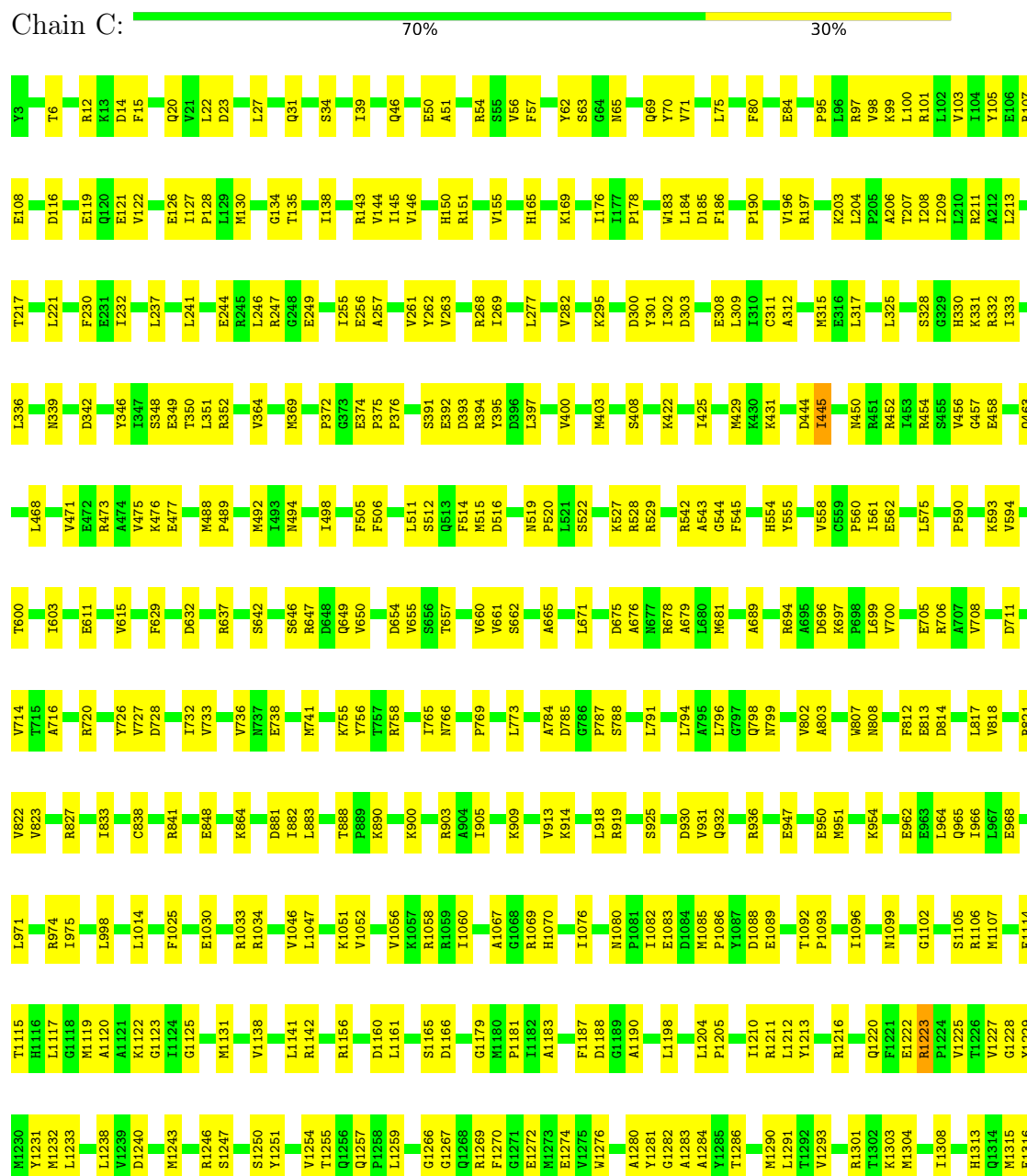
- Molecule 9 is a RNA chain called RNA (5'-R(*AP*GP*GP*UP*A)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
9	J	5	Total	C	N	O	P	0	0
			107	49	22	32	4		

3 Residue-property plots

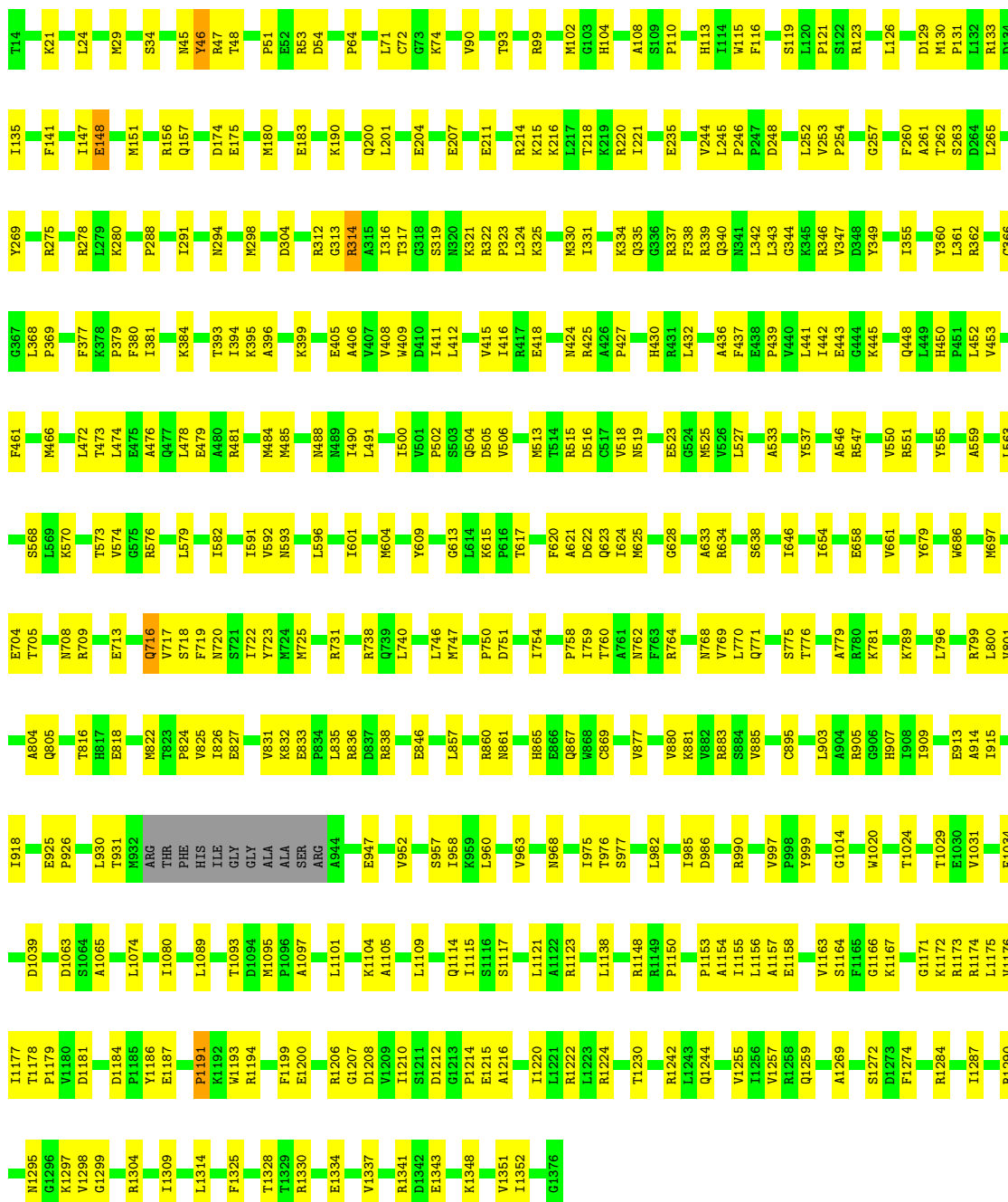
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded 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: DNA-directed RNA polymerase subunit beta



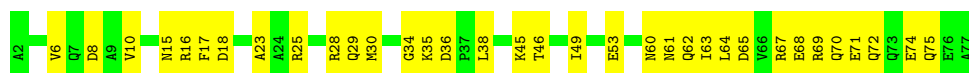
- Molecule 2: DNA-directed RNA polymerase subunit beta'

Chain D: 69% 29%



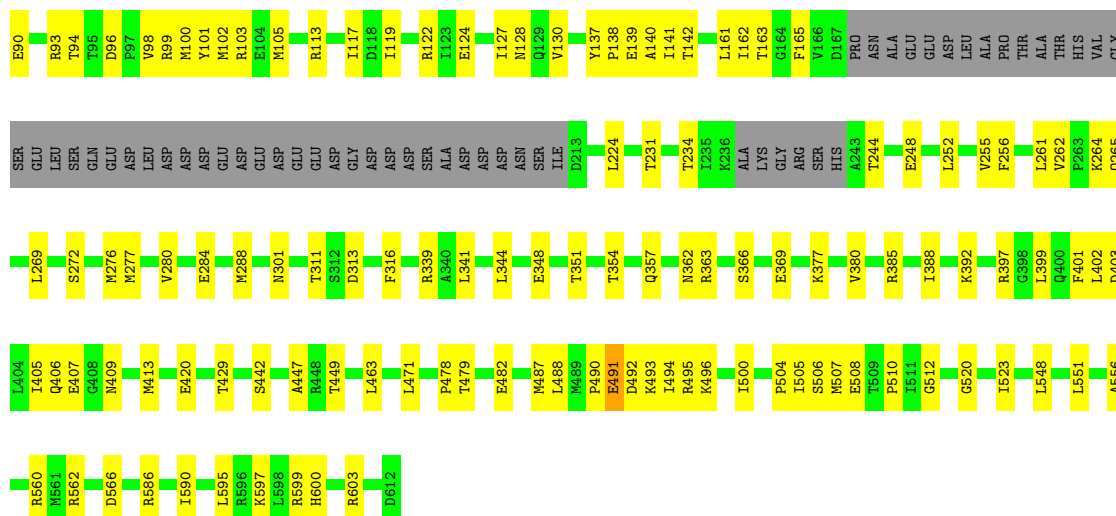
- Molecule 3: DNA-directed RNA polymerase subunit omega

Chain E: 55% 45%



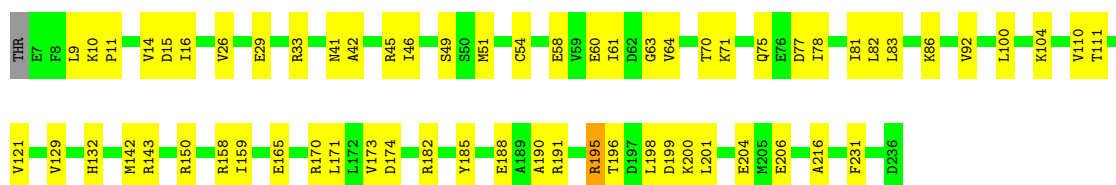
• Molecule 4: RNA polymerase sigma factor RpoD

Chain F: 67% 23% 10%



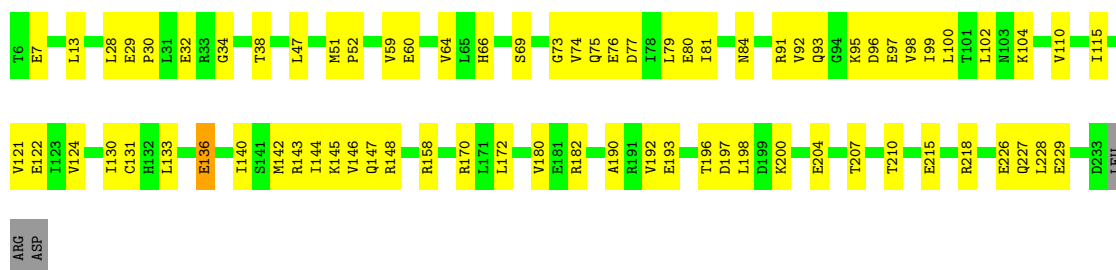
• Molecule 5: DNA-directed RNA polymerase subunit alpha

Chain A: 72% 27%



• Molecule 5: DNA-directed RNA polymerase subunit alpha

Chain B: 67% 32%



• Molecule 6: 15 kDa RNA polymerase-binding protein

Chain G: 58% 41%



• Molecule 7: DNA (61-MER)



• Molecule 8: DNA (63-MER)



• Molecule 9: RNA (5'-R(*AP*GP*GP*UP*A)-3')



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	83306	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	60	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor

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	C	0.20	0/10739	0.42	3/14489 (0.0%)
2	D	0.19	0/10652	0.44	1/14382 (0.0%)
3	E	0.24	0/608	0.70	0/817
4	F	0.14	0/3897	0.46	2/5236 (0.0%)
5	A	0.18	0/1810	0.45	0/2451
5	B	0.19	0/1789	0.50	0/2425
6	G	0.17	0/1046	0.54	0/1411
7	I	0.19	0/1400	0.35	0/2159
8	H	0.18	0/1436	0.34	0/2214
9	J	0.08	0/120	0.18	0/186
All	All	0.19	0/33497	0.44	6/45770 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
6	G	0	1

There are no bond length outliers.

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	F	488	LEU	CA-C-N	11.96	136.70	120.67
4	F	488	LEU	C-N-CA	11.96	136.70	120.67
1	C	445	ILE	N-CA-C	-5.71	106.92	112.29
1	C	1247	SER	N-CA-C	-5.46	107.62	114.56
1	C	814	ASP	N-CA-C	-5.22	104.94	113.19
2	D	1191	PRO	CA-N-CD	-5.09	104.88	112.00

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
6	G	16	GLN	Peptide

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	C	10570	0	10582	293	0
2	D	10494	0	10712	328	0
3	E	606	0	612	34	0
4	F	3846	0	3913	99	0
5	A	1788	0	1810	48	0
5	B	1767	0	1789	54	0
6	G	1031	0	1026	47	0
7	I	1248	0	689	22	0
8	H	1283	0	713	26	0
9	J	107	0	56	4	0
All	All	32740	0	31902	845	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 14.

All (845) 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)
4:F:100:MET:HA	4:F:103:ARG:HG2	1.47	0.96
3:E:65:ASP:HB3	3:E:69:ARG:HH12	1.36	0.90
1:C:560:PRO:HB2	2:D:776:THR:HG21	1.53	0.89
1:C:130:MET:HE3	1:C:134:GLY:HA2	1.60	0.82
1:C:475:VAL:HG13	1:C:492:MET:HE1	1.62	0.81
1:C:699:LEU:HG	1:C:799:ASN:HD22	1.45	0.81
2:D:130:MET:SD	2:D:157:GLN:NE2	2.54	0.80
1:C:204:LEU:HD11	1:C:369:MET:HG2	1.63	0.79
2:D:130:MET:HE3	2:D:135:ILE:HG13	1.65	0.78
2:D:123:ARG:HH21	2:D:1334:GLU:HG2	1.48	0.78
2:D:337:ARG:HH22	2:D:339:ARG:HH11	1.31	0.77

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:697:MET:HE1	2:D:738:ARG:HA	1.67	0.77
1:C:1070:HIS:NE2	1:C:1114:GLU:OE1	2.18	0.76
2:D:551:ARG:NH1	5:B:84:ASN:OD1	2.18	0.76
2:D:1172:LYS:HG3	2:D:1191:PRO:HA	1.68	0.75
1:C:256:GLU:HA	1:C:261:VAL:HA	1.69	0.74
3:E:65:ASP:HB3	3:E:69:ARG:NH1	2.03	0.73
1:C:1160:ASP:HB2	1:C:1161:LEU:HA	1.70	0.73
2:D:1314:LEU:HD21	2:D:1330:ARG:HH22	1.53	0.73
2:D:905:ARG:HE	2:D:907:HIS:HB2	1.53	0.73
4:F:407:GLU:HG3	4:F:442:SER:HB3	1.71	0.72
5:B:77:ASP:N	5:B:80:GLU:OE2	2.22	0.72
1:C:1269:ARG:NH1	8:H:17:DC:OP2	2.23	0.71
1:C:301:TYR:HB2	1:C:311:CYS:HB2	1.73	0.71
1:C:678:ARG:NH1	1:C:681:MET:SD	2.64	0.71
1:C:696:ASP:OD2	1:C:697:LYS:N	2.21	0.70
1:C:1225:VAL:HG23	2:D:638:SER:HB2	1.73	0.70
1:C:515:MET:SD	1:C:527:LYS:NZ	2.65	0.70
5:A:10:LYS:HD3	5:A:11:PRO:HD2	1.73	0.70
2:D:722:ILE:HA	2:D:725:MET:HE3	1.74	0.70
2:D:131:PRO:HD2	6:G:23:GLU:OE1	1.92	0.70
2:D:816:THR:HG22	2:D:818:GLU:H	1.55	0.70
5:A:64:VAL:HG11	5:A:78:ILE:HG13	1.72	0.70
2:D:1065:ALA:HA	2:D:1193:TRP:HA	1.73	0.70
5:A:16:ILE:HG12	5:A:26:VAL:HG23	1.73	0.69
2:D:1093:THR:HG22	2:D:1095:MET:H	1.57	0.69
2:D:313:GLY:O	2:D:314:ARG:HD3	1.93	0.69
2:D:1158:GLU:OE1	2:D:1186:TYR:OH	2.11	0.69
2:D:415:VAL:O	3:E:45:LYS:NZ	2.25	0.69
5:B:95:LYS:NZ	5:B:97:GLU:O	2.25	0.69
2:D:275:ARG:HD3	2:D:298:MET:HB3	1.73	0.68
5:A:188:GLU:OE2	5:A:200:LYS:NZ	2.19	0.68
2:D:278:ARG:NH2	4:F:403:ASP:OD1	2.26	0.68
5:A:191:ARG:HH22	5:A:196:THR:HA	1.59	0.68
1:C:95:PRO:HA	1:C:126:GLU:HG2	1.74	0.68
1:C:808:ASN:H	2:D:633:ALA:HB2	1.59	0.68
2:D:71:LEU:H	2:D:90:VAL:HG11	1.58	0.68
5:B:102:LEU:HD13	5:B:115:ILE:HG12	1.75	0.68
2:D:478:LEU:HD21	3:E:23:ALA:HB3	1.74	0.68
2:D:827:GLU:O	2:D:832:LYS:NZ	2.21	0.68
1:C:155:VAL:HG12	1:C:176:ILE:HG12	1.75	0.68
5:B:74:VAL:HG12	5:B:76:GLU:H	1.57	0.68

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:555:TYR:HB3	2:D:563:LEU:HD12	1.76	0.68
1:C:516:ASP:OD2	1:C:522:SER:OG	2.11	0.67
3:E:67:ARG:HH12	3:E:70:GLN:HB2	1.60	0.67
1:C:75:LEU:HD11	1:C:127:ILE:HD11	1.75	0.67
5:B:92:VAL:O	5:B:148:ARG:NH1	2.26	0.67
6:G:73:TRP:HZ2	6:G:108:ALA:HB1	1.60	0.67
1:C:138:ILE:HD12	1:C:143:ARG:HD3	1.77	0.67
1:C:841:ARG:HH22	2:D:257:GLY:H	1.42	0.67
1:C:1083:GLU:HG3	5:A:45:ARG:HE	1.60	0.67
1:C:542:ARG:HG3	1:C:543:ALA:H	1.58	0.66
5:A:61:ILE:HG12	5:A:142:MET:HG2	1.77	0.66
1:C:841:ARG:HG2	1:C:1046:VAL:HG12	1.77	0.66
1:C:452:ARG:NH2	1:C:458:GLU:OE2	2.28	0.66
1:C:562:GLU:OE1	1:C:662:SER:OG	2.12	0.66
1:C:1329:GLU:O	1:C:1332:SER:OG	2.10	0.66
1:C:14:ASP:HA	1:C:1183:ALA:HB3	1.76	0.65
1:C:1142:ARG:HH12	1:C:1165:SER:HA	1.62	0.65
2:D:130:MET:HG3	6:G:23:GLU:OE1	1.96	0.65
2:D:513:MET:HE3	2:D:579:LEU:HB2	1.77	0.65
4:F:402:LEU:HD23	4:F:405:ILE:HD11	1.78	0.65
2:D:860:ARG:HE	2:D:861:ASN:H	1.44	0.65
2:D:822:MET:HE1	2:D:838:ARG:HB3	1.79	0.65
4:F:252:LEU:HG	4:F:256:PHE:HE1	1.61	0.65
2:D:506:VAL:HG23	2:D:628:GLY:HA3	1.78	0.65
2:D:342:LEU:HA	2:D:344:GLY:HA2	1.77	0.65
5:B:60:GLU:HB3	5:B:142:MET:HB2	1.77	0.65
1:C:391:SER:OG	1:C:393:ASP:OD1	2.15	0.64
5:A:14:VAL:HG22	5:A:15:ASP:H	1.60	0.64
1:C:312:ALA:HB3	1:C:315:MET:HE1	1.80	0.64
2:D:110:PRO:HD2	2:D:183:GLU:HG2	1.79	0.64
1:C:1058:ARG:NH1	1:C:1240:ASP:OD2	2.30	0.64
2:D:416:ILE:HG23	2:D:439:PRO:HG2	1.78	0.64
5:B:59:VAL:HG13	5:B:144:ILE:HG22	1.79	0.64
2:D:1177:ILE:HB	2:D:1186:TYR:HD2	1.61	0.64
1:C:80:PHE:HB3	1:C:84:GLU:HG3	1.77	0.64
4:F:597:LYS:O	4:F:603:ARG:NH2	2.31	0.64
1:C:211:ARG:NH2	1:C:217:THR:OG1	2.32	0.64
5:A:82:LEU:HD11	5:A:171:LEU:HD23	1.80	0.64
2:D:947:GLU:O	2:D:1020:TRP:NE1	2.32	0.63
2:D:952:VAL:O	2:D:1014:GLY:N	2.31	0.63
1:C:425:ILE:O	1:C:429:MET:HG2	1.98	0.63

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:1269:ALA:HB1	2:D:1272:SER:H	1.64	0.62
2:D:1287:ILE:HA	2:D:1290:ARG:HG2	1.81	0.62
4:F:463:LEU:HD11	4:F:494:ILE:HG23	1.81	0.62
5:A:150:ARG:NH2	5:B:32:GLU:OE2	2.31	0.62
1:C:249:GLU:O	1:C:268:ARG:NH2	2.33	0.62
1:C:494:ASN:ND2	8:H:27:DC:OP2	2.31	0.62
1:C:812:PHE:O	2:D:504:GLN:NE2	2.33	0.62
5:B:99:ILE:HD11	5:B:143:ARG:HG3	1.81	0.62
2:D:418:GLU:OE1	3:E:45:LYS:N	2.33	0.62
1:C:213:LEU:HD22	1:C:422:LYS:HG2	1.80	0.62
2:D:245:LEU:HD12	2:D:246:PRO:HD2	1.81	0.62
5:B:190:ALA:HB2	5:B:200:LYS:HG3	1.82	0.61
1:C:813:GLU:HA	2:D:504:GLN:HE22	1.64	0.61
1:C:444:ASP:O	1:C:450:ASN:ND2	2.32	0.61
1:C:471:VAL:HG11	1:C:498:ILE:HD11	1.82	0.61
2:D:1167:LYS:HB3	2:D:1174:ARG:HH11	1.66	0.61
2:D:393:THR:HG23	2:D:396:ALA:H	1.65	0.61
5:B:47:LEU:HD23	5:B:51:MET:HE3	1.81	0.61
1:C:726:TYR:HB3	1:C:733:VAL:HB	1.83	0.61
2:D:957:SER:HB3	2:D:985:ILE:HB	1.83	0.61
1:C:756:TYR:H	1:C:766:ASN:HB3	1.66	0.61
1:C:1259:LEU:HA	1:C:1266:GLY:HA3	1.82	0.61
5:A:10:LYS:NZ	5:B:227:GLN:OE1	2.33	0.61
1:C:1313:HIS:O	3:E:28:ARG:NH2	2.32	0.61
2:D:425:ARG:HG3	2:D:427:PRO:HD2	1.82	0.61
5:B:143:ARG:HH21	5:B:170:ARG:HH11	1.49	0.61
4:F:491:GLU:HA	4:F:494:ILE:HD12	1.83	0.60
6:G:48:ILE:HG12	6:G:127:PHE:HE2	1.66	0.60
1:C:339:ASN:HB3	1:C:342:ASP:HB2	1.83	0.60
2:D:646:ILE:HG12	2:D:764:ARG:HH11	1.67	0.60
2:D:1163:VAL:HG23	2:D:1177:ILE:HG12	1.82	0.60
2:D:316:ILE:HG21	2:D:321:LYS:HD3	1.84	0.60
3:E:67:ARG:HA	3:E:67:ARG:NH1	2.17	0.60
4:F:301:ASN:ND2	6:G:1:MET:SD	2.74	0.60
5:B:215:GLU:HA	5:B:218:ARG:HG2	1.82	0.60
6:G:17:PRO:HB3	6:G:20:VAL:HG13	1.82	0.60
1:C:408:SER:O	1:C:431:LYS:NZ	2.35	0.60
1:C:169:LYS:HZ2	1:C:190:PRO:HA	1.67	0.60
1:C:660:VAL:HG21	2:D:769:VAL:HG13	1.84	0.60
2:D:1148:ARG:CZ	7:I:54:DG:H3'	2.32	0.60
2:D:518:VAL:HB	2:D:716:GLN:HG2	1.84	0.59

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:1155:ILE:HG13	2:D:1210:ILE:HB	1.83	0.59
4:F:98:VAL:O	4:F:102:MET:HG2	2.02	0.59
4:F:392:LYS:HG3	4:F:401:PHE:CE1	2.38	0.59
2:D:1230:THR:HG22	2:D:1257:VAL:HG11	1.84	0.59
2:D:1194:ARG:NH2	2:D:1212:ASP:O	2.35	0.59
3:E:65:ASP:O	3:E:68:GLU:HG3	2.02	0.59
1:C:520:PRO:HG3	1:C:714:VAL:HG21	1.84	0.59
1:C:204:LEU:HB3	1:C:208:ILE:HD12	1.84	0.59
2:D:576:ARG:HD3	2:D:593:ASN:HA	1.84	0.59
1:C:119:GLU:HB2	1:C:489:PRO:HG2	1.85	0.59
1:C:1089:GLU:OE2	1:C:1211:ARG:NH2	2.36	0.59
1:C:1313:HIS:HB3	2:D:474:LEU:H	1.66	0.59
4:F:124:GLU:O	4:F:128:ASN:ND2	2.35	0.59
1:C:1280:ALA:HB1	2:D:918:ILE:HG22	1.85	0.59
2:D:705:THR:HG21	2:D:719:PHE:HD2	1.68	0.59
2:D:1039:ASP:HB3	2:D:1074:LEU:HB3	1.84	0.58
1:C:971:LEU:HD12	1:C:974:ARG:HE	1.67	0.58
2:D:824:PRO:HD3	2:D:835:LEU:HB2	1.83	0.58
1:C:1254:VAL:O	2:D:99:ARG:NH2	2.35	0.58
1:C:295:LYS:HB2	1:C:317:LEU:HD12	1.85	0.58
2:D:442:ILE:HD13	2:D:448:GLN:HG3	1.84	0.58
1:C:196:VAL:HG23	1:C:206:ALA:HA	1.85	0.58
4:F:161:LEU:HD12	4:F:265:GLN:HG3	1.86	0.58
1:C:975:ILE:HD13	1:C:998:LEU:HD21	1.85	0.58
1:C:936:ARG:HH21	1:C:1047:LEU:HD23	1.67	0.58
2:D:418:GLU:H	3:E:45:LYS:HZ1	1.51	0.58
2:D:613:GLY:O	2:D:617:THR:OG1	2.17	0.58
2:D:216:LYS:HD2	6:G:27:GLN:HE22	1.69	0.58
5:B:29:GLU:OE1	5:B:200:LYS:NZ	2.36	0.57
2:D:1177:ILE:O	2:D:1186:TYR:HB3	2.04	0.57
3:E:67:ARG:HA	3:E:67:ARG:HH11	1.70	0.57
1:C:555:TYR:OH	1:C:654:ASP:OD2	2.14	0.57
5:A:104:LYS:HD2	5:A:110:VAL:HG22	1.86	0.57
1:C:813:GLU:HB2	2:D:461:PHE:HD2	1.68	0.57
1:C:1086:PRO:HB2	1:C:1212:LEU:HD23	1.86	0.57
2:D:253:VAL:HG21	4:F:523:ILE:HG21	1.86	0.57
5:B:104:LYS:HE3	5:B:110:VAL:HG22	1.87	0.57
2:D:406:ALA:HA	2:D:409:TRP:HD1	1.70	0.57
3:E:30:MET:HE3	3:E:30:MET:HA	1.87	0.57
4:F:399:LEU:HD22	4:F:447:ALA:HB2	1.85	0.57
1:C:145:ILE:HB	1:C:456:VAL:HG22	1.85	0.56

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1276:TRP:CD1	2:D:1348:LYS:HZ1	2.23	0.56
4:F:224:LEU:HD11	4:F:256:PHE:CE2	2.40	0.56
5:B:60:GLU:HB2	5:B:143:ARG:HD3	1.85	0.56
2:D:1154:ALA:HA	2:D:1194:ARG:HH22	1.68	0.56
5:A:41:ASN:O	5:A:45:ARG:HG2	2.05	0.56
2:D:338:PHE:HD1	2:D:343:LEU:H	1.52	0.56
1:C:1119:MET:SD	1:C:1228:GLY:HA2	2.45	0.56
4:F:96:ASP:OD2	4:F:99:ARG:NH1	2.39	0.56
6:G:36:TRP:NE1	6:G:66:ASP:OD1	2.38	0.56
2:D:473:THR:HG23	2:D:476:ALA:H	1.70	0.56
1:C:1069:ARG:HD2	1:C:1231:TYR:HB3	1.87	0.56
4:F:388:ILE:HG23	4:F:401:PHE:HZ	1.69	0.56
6:G:72:LYS:HA	6:G:75:GLU:HG2	1.88	0.56
1:C:6:THR:HG22	1:C:706:ARG:HH12	1.71	0.56
1:C:178:PRO:HA	1:C:397:LEU:HD23	1.87	0.56
1:C:950:GLU:HG2	1:C:954:LYS:HZ2	1.70	0.56
5:A:185:TYR:HB2	5:A:201:LEU:HD11	1.87	0.56
5:A:231:PHE:CE1	5:B:28:LEU:HD22	2.41	0.56
6:G:14:ASP:HB3	6:G:113:ILE:HG12	1.88	0.56
1:C:813:GLU:HA	2:D:504:GLN:NE2	2.20	0.56
6:G:21:ARG:HE	6:G:30:ASN:HB2	1.70	0.56
1:C:1340:GLU:HG3	2:D:21:LYS:HE2	1.88	0.55
2:D:825:VAL:HG12	2:D:833:GLU:HB3	1.88	0.55
1:C:1120:ALA:HB1	1:C:1198:LEU:HG	1.89	0.55
2:D:412:LEU:HD22	2:D:441:LEU:HD21	1.87	0.55
4:F:105:MET:HE2	4:F:385:ARG:HG2	1.88	0.55
2:D:338:PHE:HA	2:D:343:LEU:N	2.21	0.55
5:A:42:ALA:O	5:A:46:ILE:HG12	2.06	0.55
2:D:102:MET:HG2	2:D:246:PRO:HD3	1.89	0.55
2:D:322:ARG:HH12	4:F:510:PRO:HD3	1.72	0.55
2:D:430:HIS:CE1	2:D:432:LEU:HB2	2.41	0.55
2:D:833:GLU:OE1	2:D:1242:ARG:NH1	2.36	0.55
6:G:33:ARG:HA	6:G:36:TRP:CD1	2.42	0.55
1:C:629:PHE:HB2	1:C:647:ARG:HE	1.71	0.55
1:C:632:ASP:OD1	1:C:647:ARG:NH1	2.40	0.55
2:D:485:MET:HB3	2:D:488:ASN:HD22	1.72	0.54
2:D:527:LEU:HB2	2:D:550:VAL:HG12	1.90	0.54
2:D:747:MET:HE3	2:D:759:ILE:HG13	1.89	0.54
5:A:100:LEU:HD21	5:A:121:VAL:HG21	1.89	0.54
1:C:241:LEU:HD21	1:C:246:LEU:HD11	1.88	0.54
1:C:755:LYS:HE2	5:A:70:THR:HG21	1.88	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:437:PHE:HZ	2:D:453:VAL:HG11	1.72	0.54
5:A:14:VAL:HG11	5:A:29:GLU:HG3	1.89	0.54
4:F:96:ASP:HB3	4:F:99:ARG:HG2	1.90	0.54
7:I:8:DG:N2	8:H:59:DT:O2	2.40	0.54
2:D:337:ARG:HD2	2:D:340:GLN:HG2	1.89	0.54
1:C:300:ASP:HA	1:C:312:ALA:HA	1.89	0.54
1:C:890:LYS:HD3	1:C:914:LYS:HB2	1.89	0.54
1:C:1255:THR:HG21	1:C:1257:GLN:HE21	1.72	0.54
2:D:262:THR:O	4:F:506:SER:HA	2.07	0.54
2:D:1164:SER:HA	2:D:1200:GLU:HG3	1.88	0.54
1:C:975:ILE:HG13	1:C:1014:LEU:HD23	1.89	0.54
1:C:1030:GLU:OE2	1:C:1034:ARG:NH1	2.40	0.54
1:C:303:ASP:HB2	1:C:308:GLU:H	1.73	0.54
2:D:337:ARG:NH2	2:D:339:ARG:HH11	2.02	0.54
1:C:594:VAL:HG11	1:C:650:VAL:HG23	1.89	0.53
8:H:9:DG:H2''	8:H:10:DC:H5'	1.90	0.53
1:C:1122:LYS:HG2	1:C:1229:TYR:CZ	2.43	0.53
2:D:1171:GLY:O	2:D:1172:LYS:HD3	2.08	0.53
5:A:190:ALA:H	5:A:199:ASP:HA	1.72	0.53
2:D:500:ILE:HG13	2:D:500:ILE:O	2.09	0.53
5:A:54:CYS:SG	5:A:92:VAL:HG22	2.49	0.53
5:B:84:ASN:ND2	5:B:130:ILE:O	2.42	0.53
1:C:1293:VAL:HG21	1:C:1315:MET:HB2	1.90	0.53
2:D:1150:PRO:HB2	2:D:1214:PRO:HG2	1.91	0.53
1:C:468:LEU:HA	1:C:471:VAL:HG12	1.90	0.53
2:D:395:LYS:O	2:D:399:LYS:HG2	2.08	0.53
2:D:518:VAL:O	2:D:547:ARG:NH2	2.35	0.53
2:D:746:LEU:HD13	2:D:758:PRO:HB3	1.91	0.53
4:F:392:LYS:HZ1	7:I:43:DT:H1'	1.73	0.53
6:G:76:LEU:O	6:G:79:LYS:HG3	2.09	0.53
2:D:768:ASN:OD1	2:D:771:GLN:NE2	2.36	0.53
2:D:877:VAL:O	2:D:990:ARG:NE	2.40	0.53
1:C:135:THR:HG22	1:C:144:VAL:HG22	1.91	0.53
1:C:675:ASP:HB2	1:C:1107:MET:HB2	1.91	0.53
1:C:817:LEU:HD21	1:C:1085:MET:HE1	1.91	0.53
2:D:905:ARG:NE	2:D:907:HIS:HB2	2.23	0.53
2:D:1341:ARG:NH1	2:D:1343:GLU:OE2	2.41	0.53
1:C:932:GLN:HB2	1:C:1051:LYS:HB2	1.91	0.53
2:D:679:TYR:OH	2:D:754:ILE:O	2.22	0.53
2:D:1029:THR:HG21	2:D:1115:ILE:HD12	1.90	0.53
4:F:429:THR:OG1	7:I:40:DA:OP2	2.23	0.53

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:473:ARG:NH1	1:C:477:GLU:OE1	2.42	0.52
1:C:1313:HIS:HE2	2:D:380:PHE:HE2	1.56	0.52
5:A:195:ARG:HG2	5:A:198:LEU:HG	1.89	0.52
5:B:197:ASP:OD1	5:B:197:ASP:N	2.43	0.52
1:C:821:ARG:HB2	1:C:1082:ILE:HD13	1.92	0.52
5:B:140:ILE:HG13	5:B:142:MET:HE1	1.91	0.52
1:C:119:GLU:HG3	1:C:122:VAL:HB	1.92	0.52
1:C:364:VAL:HG22	1:C:376:PRO:HB2	1.90	0.52
1:C:611:GLU:OE2	1:C:637:ARG:NH1	2.43	0.52
2:D:1158:GLU:OE2	2:D:1222:ARG:NH2	2.42	0.52
4:F:560:ARG:NH1	4:F:566:ASP:OD2	2.42	0.52
5:B:75:GLN:N	5:B:75:GLN:OE1	2.41	0.52
1:C:864:LYS:NZ	1:C:881:ASP:OD2	2.43	0.52
1:C:1284:ALA:N	2:D:479:GLU:OE2	2.42	0.52
4:F:224:LEU:HD11	4:F:256:PHE:CD2	2.45	0.52
2:D:986:ASP:OD1	2:D:990:ARG:N	2.41	0.52
8:H:18:DC:H2'	8:H:19:DT:C6	2.44	0.52
1:C:22:LEU:HD12	1:C:603:ILE:HG21	1.90	0.52
1:C:1291:LEU:HD11	2:D:1351:VAL:HG13	1.90	0.52
2:D:1148:ARG:NH2	7:I:54:DG:H3'	2.25	0.52
4:F:162:ILE:HD12	4:F:165:PHE:HE2	1.75	0.52
2:D:925:GLU:HG3	2:D:926:PRO:HD3	1.92	0.52
5:A:92:VAL:HG12	5:A:121:VAL:HG22	1.91	0.52
2:D:1207:GLY:O	2:D:1224:ARG:NH1	2.43	0.52
6:G:3:LYS:HG3	6:G:128:ASN:HB3	1.91	0.52
2:D:883:ARG:NH2	2:D:895:CYS:SG	2.82	0.52
1:C:905:ILE:HA	4:F:599:ARG:NH2	2.25	0.52
5:B:99:ILE:HD12	5:B:145:LYS:HZ1	1.75	0.52
5:B:124:VAL:HG21	5:B:210:THR:HG22	1.91	0.52
6:G:33:ARG:HA	6:G:36:TRP:NE1	2.25	0.52
7:I:42:DG:N2	7:I:43:DT:O4	2.42	0.52
1:C:69:GLN:HB2	1:C:101:ARG:HG3	1.92	0.51
5:A:150:ARG:NH2	5:B:7:GLU:O	2.43	0.51
6:G:110:GLU:HA	6:G:113:ILE:HG22	1.91	0.51
1:C:331:LYS:HG3	1:C:332:ARG:HG2	1.90	0.51
2:D:322:ARG:HD3	2:D:323:PRO:HD2	1.92	0.51
2:D:1330:ARG:NH1	2:D:1334:GLU:OE2	2.42	0.51
5:A:86:LYS:NZ	5:A:174:ASP:O	2.42	0.51
5:B:64:VAL:HG11	5:B:69:SER:HB2	1.92	0.51
5:B:158:ARG:HD2	5:B:172:LEU:HD11	1.93	0.51
6:G:76:LEU:HD12	6:G:115:ALA:HB2	1.92	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:I:29:DG:N2	8:H:38:DT:O2	2.43	0.51
1:C:146:VAL:HG13	1:C:529:ARG:HB3	1.93	0.51
2:D:288:PRO:HG3	4:F:377:LYS:HG2	1.92	0.51
2:D:1290:ARG:NH2	2:D:1299:GLY:O	2.43	0.51
8:H:1:DG:H2''	8:H:2:DG:H5'	1.91	0.51
6:G:28:ASN:OD1	6:G:29:GLN:N	2.40	0.51
1:C:1269:ARG:CD	2:D:344:GLY:HA3	2.41	0.51
2:D:1179:PRO:HD2	2:D:1184:ASP:HA	1.92	0.51
4:F:311:THR:HA	4:F:341:LEU:HD11	1.93	0.51
1:C:12:ARG:HG3	1:C:1181:PRO:HB2	1.92	0.51
4:F:252:LEU:HG	4:F:256:PHE:CE1	2.43	0.51
1:C:70:TYR:HA	1:C:100:LEU:HD23	1.93	0.51
2:D:201:LEU:HB2	2:D:221:ILE:HD13	1.93	0.51
2:D:355:ILE:HG21	2:D:466:MET:SD	2.51	0.51
2:D:805:GLN:HE21	2:D:1348:LYS:H	1.59	0.51
2:D:1153:PRO:O	2:D:1194:ARG:NH1	2.39	0.51
4:F:102:MET:HA	4:F:105:MET:HG3	1.93	0.51
4:F:397:ARG:HG3	8:H:28:DC:H42	1.76	0.51
1:C:150:HIS:CD2	1:C:454:ARG:HG3	2.45	0.51
2:D:805:GLN:HG3	2:D:1348:LYS:HG2	1.92	0.51
4:F:137:TYR:HE1	4:F:351:THR:HG23	1.77	0.51
6:G:107:ASN:N	6:G:110:GLU:OE2	2.44	0.51
8:H:15:DT:O4	8:H:16:DA:N6	2.44	0.51
6:G:99:ARG:NH1	6:G:100:LEU:O	2.43	0.50
1:C:1332:SER:HA	2:D:102:MET:HE1	1.93	0.50
2:D:1178:THR:HA	2:D:1184:ASP:O	2.11	0.50
2:D:45:ASN:O	2:D:47:ARG:N	2.44	0.50
2:D:418:GLU:HB3	3:E:45:LYS:HD2	1.93	0.50
2:D:450:HIS:HB3	2:D:453:VAL:HG23	1.92	0.50
5:A:77:ASP:O	5:A:81:ILE:HD12	2.12	0.50
3:E:71:GLU:HA	3:E:74:GLU:CD	2.37	0.50
4:F:99:ARG:HB3	4:F:103:ARG:NH2	2.26	0.50
4:F:102:MET:HB2	4:F:103:ARG:NH1	2.26	0.50
4:F:595:LEU:HD22	4:F:599:ARG:HH22	1.77	0.50
6:G:80:HIS:CE1	6:G:111:ARG:HH21	2.28	0.50
2:D:615:LYS:NZ	3:E:8:ASP:OD1	2.36	0.50
3:E:71:GLU:HA	3:E:74:GLU:OE1	2.11	0.50
1:C:542:ARG:NH1	7:I:51:DA:OP2	2.37	0.50
2:D:877:VAL:C	2:D:990:ARG:HE	2.19	0.50
2:D:319:SER:HB2	8:H:25:DA:N1	2.26	0.50
2:D:975:ILE:HD12	2:D:997:VAL:HG11	1.93	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:137:TYR:CZ	4:F:139:GLU:HB2	2.47	0.50
2:D:913:GLU:OE1	2:D:914:ALA:N	2.45	0.50
4:F:449:THR:HB	4:F:504:PRO:HD2	1.94	0.50
2:D:604:MET:HE3	2:D:620:PHE:HZ	1.77	0.50
3:E:25:ARG:O	3:E:29:GLN:HG3	2.11	0.50
5:A:51:MET:HE1	5:A:216:ALA:HA	1.93	0.50
2:D:1031:VAL:HG23	2:D:1080:ILE:HG21	1.94	0.49
2:D:1177:ILE:HD12	2:D:1186:TYR:CE2	2.47	0.49
4:F:163:THR:HG23	4:F:262:VAL:HG22	1.94	0.49
2:D:141:PHE:HB3	2:D:180:MET:HE2	1.94	0.49
2:D:211:GLU:O	2:D:215:LYS:HG2	2.13	0.49
2:D:1095:MET:HE1	2:D:1199:PHE:CE1	2.48	0.49
2:D:515:ARG:HE	2:D:717:VAL:HG12	1.78	0.49
2:D:717:VAL:HG13	2:D:723:TYR:HE2	1.77	0.49
4:F:140:ALA:HB1	4:F:269:LEU:HD22	1.94	0.49
8:H:54:DA:H2''	8:H:55:DA:C8	2.46	0.49
1:C:197:ARG:HE	1:C:203:LYS:HB3	1.75	0.49
1:C:700:VAL:HG13	1:C:1117:LEU:HD23	1.94	0.49
1:C:716:ALA:HB3	1:C:784:ALA:HB3	1.93	0.49
2:D:113:HIS:CE1	2:D:115:TRP:HB2	2.46	0.49
2:D:418:GLU:O	2:D:481:ARG:NH2	2.44	0.49
2:D:484:MET:HE2	2:D:484:MET:HA	1.95	0.49
5:B:51:MET:SD	5:B:52:PRO:HD2	2.52	0.49
1:C:1205:PRO:HG2	1:C:1210:ILE:HG12	1.93	0.49
1:C:1293:VAL:HG11	1:C:1304:MET:HE3	1.93	0.49
5:B:100:LEU:HD11	5:B:121:VAL:HG21	1.94	0.49
2:D:254:PRO:HA	2:D:260:PHE:HD1	1.78	0.49
2:D:686:TRP:HB3	2:D:746:LEU:HD21	1.95	0.49
2:D:740:LEU:O	2:D:762:ASN:ND2	2.43	0.49
7:I:11:DT:H4'	8:H:58:DC:H5'	1.93	0.49
1:C:1105:SER:OG	2:D:731:ARG:NH2	2.45	0.49
2:D:148:GLU:OE2	2:D:156:ARG:NE	2.46	0.49
2:D:175:GLU:CD	6:G:45:MET:HE1	2.37	0.49
2:D:822:MET:HB2	2:D:880:VAL:O	2.12	0.49
2:D:1177:ILE:HD12	2:D:1186:TYR:HE2	1.78	0.49
4:F:277:MET:HE3	4:F:362:ASN:CG	2.38	0.49
1:C:883:LEU:HD13	1:C:1052:VAL:HG11	1.94	0.49
1:C:1058:ARG:HD2	1:C:1238:LEU:HD23	1.95	0.49
4:F:127:ILE:HA	4:F:130:VAL:HG22	1.95	0.49
4:F:262:VAL:HG12	4:F:264:LYS:H	1.78	0.49
1:C:146:VAL:HB	1:C:511:LEU:HD22	1.95	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:649:GLN:OE1	1:C:649:GLN:N	2.46	0.48
2:D:263:SER:HA	4:F:507:MET:HE1	1.93	0.48
2:D:361:LEU:HD13	2:D:366:CYS:HA	1.95	0.48
2:D:1216:ALA:O	2:D:1220:ILE:HG12	2.12	0.48
2:D:1314:LEU:HD21	2:D:1330:ARG:NH2	2.24	0.48
5:B:180:VAL:HG12	5:B:207:THR:HG22	1.94	0.48
6:G:27:GLN:O	6:G:31:LYS:NZ	2.45	0.48
2:D:130:MET:HE3	2:D:135:ILE:CG1	2.39	0.48
2:D:502:PRO:HB3	2:D:506:VAL:HG13	1.95	0.48
2:D:1269:ALA:H	2:D:1274:PHE:HE1	1.59	0.48
4:F:507:MET:HB3	4:F:520:GLY:N	2.28	0.48
7:I:3:DC:H2''	7:I:4:DC:C5	2.48	0.48
1:C:882:ILE:HG13	1:C:919:ARG:HG3	1.94	0.48
2:D:1220:ILE:HD12	2:D:1224:ARG:HH21	1.78	0.48
4:F:490:PRO:O	4:F:491:GLU:HB3	2.14	0.48
1:C:506:PHE:O	1:C:512:SER:OG	2.19	0.48
3:E:30:MET:HE1	3:E:36:ASP:C	2.39	0.48
4:F:224:LEU:HD12	4:F:255:VAL:HG23	1.96	0.48
4:F:493:LYS:HA	4:F:496:LYS:HG2	1.95	0.48
1:C:97:ARG:HD3	1:C:121:GLU:HB3	1.96	0.48
1:C:372:PRO:HB2	4:F:94:THR:HG22	1.95	0.48
2:D:294:ASN:O	2:D:298:MET:HG2	2.13	0.48
2:D:338:PHE:HA	2:D:342:LEU:C	2.39	0.48
2:D:804:ALA:HA	2:D:1259:GLN:HG3	1.94	0.48
2:D:1284:ARG:HA	2:D:1287:ILE:HG12	1.96	0.48
4:F:231:THR:O	4:F:234:THR:OG1	2.30	0.48
5:B:34:GLY:O	5:B:38:THR:HG23	2.14	0.48
8:H:7:DT:H2''	8:H:8:DC:H5'	1.96	0.48
1:C:176:ILE:HD12	1:C:184:LEU:HD23	1.96	0.48
1:C:812:PHE:O	1:C:1099:ASN:ND2	2.47	0.48
1:C:962:GLU:O	1:C:965:GLN:HG3	2.13	0.48
5:B:60:GLU:CD	5:B:143:ARG:HH11	2.22	0.48
1:C:1222:GLU:O	1:C:1223:ARG:HG2	2.14	0.48
2:D:930:LEU:HD22	2:D:1244:GLN:HG3	1.96	0.48
5:A:75:GLN:HG2	5:A:132:HIS:HB2	1.94	0.48
5:A:158:ARG:NH2	5:A:173:VAL:O	2.46	0.48
6:G:61:TYR:O	6:G:65:ILE:HG13	2.14	0.48
8:H:26:DG:H5'	8:H:26:DG:C8	2.48	0.48
2:D:362:ARG:HG3	2:D:622:ASP:OD2	2.14	0.48
2:D:968:ASN:HB2	2:D:1117:SER:HB2	1.96	0.48
5:B:30:PRO:HB2	5:B:198:LEU:HD12	1.95	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:1176:VAL:HA	2:D:1187:GLU:HA	1.96	0.48
1:C:277:LEU:HD22	1:C:282:VAL:HG21	1.96	0.47
2:D:317:THR:HB	2:D:324:LEU:HD21	1.95	0.47
2:D:591:ILE:HG23	2:D:592:VAL:HG13	1.96	0.47
3:E:15:ASN:HB3	3:E:18:ASP:OD1	2.14	0.47
3:E:46:THR:HA	3:E:49:ILE:HD12	1.94	0.47
1:C:947:GLU:O	1:C:951:MET:HG2	2.15	0.47
3:E:34:GLY:C	3:E:35:LYS:HD2	2.39	0.47
4:F:600:HIS:HB3	4:F:603:ARG:HH21	1.79	0.47
7:I:49:DT:H4'	7:I:50:DG:OP2	2.13	0.47
1:C:230:PHE:HB3	1:C:237:LEU:HD23	1.96	0.47
1:C:1105:SER:HB3	2:D:731:ARG:HE	1.79	0.47
7:I:6:DC:H2''	7:I:7:DA:C8	2.49	0.47
1:C:232:ILE:HA	1:C:237:LEU:HG	1.95	0.47
1:C:593:LYS:O	1:C:600:THR:OG1	2.28	0.47
1:C:708:VAL:HG11	1:C:794:LEU:HD22	1.97	0.47
1:C:1082:ILE:HD11	1:C:1093:PRO:HG2	1.96	0.47
5:B:91:ARG:HG3	5:B:93:GLN:HE22	1.79	0.47
7:I:54:DG:O6	8:H:11:DC:N4	2.47	0.47
1:C:817:LEU:HD21	1:C:1080:ASN:HD22	1.79	0.47
2:D:796:LEU:O	2:D:800:LEU:HG	2.14	0.47
2:D:885:VAL:HG21	2:D:1255:VAL:HG12	1.95	0.47
5:B:110:VAL:HB	5:B:131:CYS:HB2	1.96	0.47
6:G:107:ASN:ND2	6:G:109:ASP:OD2	2.48	0.47
1:C:642:SER:HB3	2:D:770:LEU:HD11	1.97	0.47
1:C:818:VAL:HG21	1:C:1076:ILE:HD13	1.97	0.47
2:D:51:PRO:HD2	2:D:71:LEU:HD11	1.97	0.47
2:D:211:GLU:HG3	2:D:214:ARG:HH21	1.80	0.47
2:D:533:ALA:HB1	2:D:574:VAL:HG13	1.96	0.47
2:D:1109:LEU:HD13	2:D:1115:ILE:HG22	1.96	0.47
2:D:1298:VAL:H	2:D:1299:GLY:HA3	1.78	0.47
4:F:586:ARG:HE	4:F:590:ILE:HG13	1.79	0.47
1:C:169:LYS:HD2	1:C:169:LYS:O	2.15	0.47
1:C:364:VAL:HG13	1:C:376:PRO:HG3	1.95	0.47
1:C:1286:THR:N	2:D:479:GLU:OE1	2.47	0.47
2:D:412:LEU:O	2:D:416:ILE:HG12	2.14	0.47
2:D:1157:ALA:N	2:D:1208:ASP:O	2.28	0.47
4:F:101:TYR:CE2	4:F:405:ILE:HD12	2.50	0.47
4:F:507:MET:SD	4:F:507:MET:N	2.87	0.47
1:C:15:PHE:CD2	1:C:1190:ALA:HB2	2.49	0.47
4:F:124:GLU:HA	4:F:127:ILE:HG12	1.95	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:42:ASP:O	6:G:45:MET:HB3	2.14	0.47
2:D:151:MET:HB2	6:G:45:MET:SD	2.55	0.47
2:D:857:LEU:H	2:D:857:LEU:HD23	1.79	0.47
1:C:34:SER:HG	1:C:457:GLY:H	1.58	0.46
1:C:727:VAL:HG23	1:C:773:LEU:HD23	1.97	0.46
2:D:151:MET:SD	2:D:151:MET:N	2.87	0.46
1:C:221:LEU:HB3	1:C:336:LEU:HD21	1.97	0.46
2:D:131:PRO:O	2:D:135:ILE:HD12	2.15	0.46
2:D:204:GLU:HA	6:G:77:MET:HE1	1.96	0.46
2:D:799:ARG:NH1	2:D:1309:ILE:HD11	2.30	0.46
1:C:230:PHE:HB2	1:C:333:ILE:HB	1.98	0.46
1:C:590:PRO:HG2	1:C:655:VAL:HG21	1.96	0.46
1:C:900:LYS:O	1:C:903:ARG:HG3	2.15	0.46
2:D:291:ILE:HD13	4:F:409:ASN:HB3	1.96	0.46
2:D:519:ASN:ND2	2:D:709:ARG:O	2.48	0.46
2:D:958:ILE:HD12	2:D:982:LEU:HD21	1.97	0.46
8:H:14:DG:H2'	8:H:15:DT:C6	2.49	0.46
2:D:71:LEU:HD23	2:D:71:LEU:O	2.15	0.46
2:D:201:LEU:HD11	2:D:220:ARG:HG3	1.98	0.46
4:F:492:ASP:HA	4:F:495:ARG:HG2	1.98	0.46
5:B:102:LEU:HB3	5:B:142:MET:SD	2.55	0.46
7:I:19:DA:H2''	7:I:20:DA:C8	2.51	0.46
1:C:302:ILE:HG22	1:C:309:LEU:HA	1.97	0.46
2:D:334:LYS:HA	2:D:335:GLN:HA	1.70	0.46
1:C:765:ILE:HG13	1:C:765:ILE:O	2.16	0.46
1:C:186:PHE:CD1	1:C:196:VAL:HG22	2.51	0.46
1:C:391:SER:HB3	1:C:394:ARG:HB2	1.97	0.46
2:D:384:LYS:HB3	2:D:411:ILE:HD12	1.98	0.46
2:D:1029:THR:HG23	2:D:1121:LEU:HB2	1.98	0.46
2:D:1166:GLY:HA3	2:D:1174:ARG:HG3	1.98	0.46
1:C:1131:MET:HE2	1:C:1141:LEU:HD12	1.98	0.46
1:C:1269:ARG:HB3	8:H:16:DA:H5''	1.98	0.46
2:D:72:CYS:HB3	2:D:74:LYS:HG3	1.97	0.46
2:D:129:ASP:HB2	2:D:220:ARG:HH21	1.80	0.46
2:D:976:THR:O	2:D:977:SER:OG	2.28	0.46
2:D:1173:ARG:HH22	2:D:1175:LEU:HD13	1.80	0.46
1:C:185:ASP:HB2	1:C:197:ARG:HB2	1.97	0.46
1:C:1067:ALA:O	1:C:1232:MET:HG3	2.16	0.46
2:D:1284:ARG:HH21	2:D:1304:ARG:NE	2.14	0.46
4:F:119:ILE:HG12	4:F:122:ARG:NH1	2.31	0.46
4:F:354:THR:OG1	4:F:357:GLN:HG2	2.16	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:64:VAL:HG12	5:B:66:HIS:H	1.80	0.46
5:B:226:GLU:HA	5:B:229:GLU:OE1	2.16	0.46
1:C:151:ARG:HH21	1:C:445:ILE:HD11	1.81	0.46
1:C:348:SER:O	1:C:352:ARG:HG2	2.16	0.46
1:C:1259:LEU:HD22	2:D:346:ARG:HE	1.80	0.46
2:D:24:LEU:HD11	2:D:116:PHE:CE2	2.51	0.46
4:F:119:ILE:HG12	4:F:122:ARG:HH12	1.80	0.46
4:F:284:GLU:O	4:F:288:MET:HG2	2.16	0.46
4:F:512:GLY:HA2	8:H:22:DC:C5	2.51	0.46
1:C:50:GLU:OE2	1:C:54:ARG:NE	2.49	0.45
1:C:511:LEU:HD23	1:C:511:LEU:HA	1.70	0.45
2:D:491:LEU:HD11	2:D:609:TYR:CE2	2.50	0.45
2:D:846:GLU:HB2	2:D:881:LYS:HE2	1.97	0.45
2:D:986:ASP:OD2	2:D:990:ARG:HB2	2.15	0.45
5:B:81:ILE:HA	5:B:84:ASN:HD22	1.80	0.45
1:C:657:THR:HG21	1:C:1188:ASP:HB2	1.97	0.45
1:C:965:GLN:HA	1:C:968:GLU:HG2	1.97	0.45
1:C:1283:ALA:HA	2:D:479:GLU:OE2	2.16	0.45
2:D:34:SER:HB2	2:D:104:HIS:HB3	1.97	0.45
3:E:67:ARG:NH1	3:E:70:GLN:HB2	2.30	0.45
4:F:420:GLU:N	7:I:37:DA:H61	2.14	0.45
5:B:91:ARG:HG3	5:B:122:GLU:HB3	1.99	0.45
6:G:93:MET:HE2	6:G:93:MET:HA	1.98	0.45
3:E:61:ASN:OD1	3:E:62:GLN:N	2.49	0.45
5:A:182:ARG:HB3	5:A:206:GLU:HB2	1.97	0.45
5:B:97:GLU:HG2	5:B:147:GLN:HG2	1.98	0.45
7:I:39:DA:H2"	7:I:40:DA:C5	2.52	0.45
1:C:802:VAL:HG23	1:C:1096:ILE:HG22	1.99	0.45
2:D:377:PHE:O	2:D:381:ILE:HG12	2.17	0.45
2:D:621:ALA:O	2:D:624:ILE:HG22	2.17	0.45
2:D:1156:LEU:HD11	2:D:1220:ILE:HD13	1.98	0.45
5:A:61:ILE:HB	5:A:64:VAL:HG22	1.98	0.45
6:G:13:LYS:O	6:G:16:GLN:HG3	2.17	0.45
1:C:964:LEU:HD22	1:C:1025:PHE:CG	2.51	0.45
2:D:313:GLY:C	2:D:314:ARG:HD3	2.41	0.45
2:D:349:TYR:HE1	2:D:379:PRO:HG3	1.82	0.45
4:F:388:ILE:HG22	4:F:392:LYS:HE2	1.99	0.45
5:A:33:ARG:HG2	5:A:199:ASP:OD2	2.17	0.45
1:C:46:GLN:O	1:C:51:ALA:HB2	2.17	0.45
1:C:56:VAL:HG11	1:C:468:LEU:HD13	1.97	0.45
1:C:488:MET:SD	1:C:489:PRO:HD2	2.57	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:646:SER:HB3	1:C:649:GLN:HE22	1.82	0.45
1:C:738:GLU:HA	1:C:741:MET:HE2	1.99	0.45
2:D:516:ASP:HB3	2:D:573:THR:HG21	1.98	0.45
2:D:789:LYS:HD2	2:D:1138:LEU:HD12	1.99	0.45
1:C:20:GLN:OE1	1:C:1156:ARG:NH1	2.49	0.45
1:C:823:VAL:HG12	1:C:1060:ILE:HG23	1.98	0.45
1:C:1336:ASN:ND2	2:D:29:MET:HE1	2.32	0.45
2:D:200:GLN:HE21	6:G:28:ASN:ND2	2.14	0.45
2:D:325:LYS:HB2	4:F:508:GLU:HG3	1.98	0.45
2:D:1330:ARG:HG2	2:D:1334:GLU:OE2	2.17	0.45
4:F:597:LYS:HE2	4:F:603:ARG:HH12	1.81	0.45
5:A:190:ALA:HB2	5:A:200:LYS:HB3	1.99	0.45
6:G:16:GLN:OE1	6:G:17:PRO:HD2	2.17	0.45
1:C:689:ALA:HB2	1:C:1233:LEU:HD12	1.99	0.45
1:C:1080:ASN:HB2	1:C:1085:MET:HE3	1.98	0.45
1:C:1115:THR:HG22	1:C:1228:GLY:HA3	1.99	0.45
2:D:108:ALA:HB2	2:D:280:LYS:HG3	1.99	0.45
2:D:596:LEU:HB3	2:D:601:ILE:HD11	1.98	0.45
1:C:803:ALA:HB2	1:C:1227:VAL:HG12	1.99	0.45
1:C:176:ILE:HB	1:C:184:LEU:HB3	1.99	0.45
1:C:178:PRO:HB3	1:C:395:TYR:CZ	2.52	0.45
2:D:133:ARG:NH1	4:F:93:ARG:HA	2.32	0.45
2:D:394:ILE:H	2:D:394:ILE:HD12	1.82	0.45
2:D:836:ARG:HG3	2:D:869:CYS:HB3	1.97	0.45
3:E:10:VAL:HG22	3:E:16:ARG:HG3	1.99	0.45
1:C:671:LEU:HD11	1:C:679:ALA:HB1	1.99	0.44
1:C:841:ARG:NH2	2:D:257:GLY:H	2.12	0.44
1:C:1282:GLY:HA3	3:E:17:PHE:CE1	2.52	0.44
2:D:298:MET:HE2	4:F:406:GLN:HG3	2.00	0.44
2:D:537:TYR:OH	2:D:634:ARG:NE	2.38	0.44
1:C:107:ARG:HA	1:C:108:GLU:HA	1.60	0.44
1:C:328:SER:HG	1:C:330:HIS:HD1	1.65	0.44
2:D:960:LEU:HD13	2:D:963:VAL:HG21	1.99	0.44
1:C:207:THR:HG21	1:C:351:LEU:HG	1.99	0.44
1:C:528:ARG:HH21	1:C:575:LEU:HD22	1.83	0.44
1:C:925:SER:O	1:C:1056:VAL:HG22	2.17	0.44
1:C:1138:VAL:HG11	1:C:1166:ASP:CG	2.42	0.44
2:D:123:ARG:HG3	2:D:1337:VAL:HG11	2.00	0.44
2:D:915:ILE:HA	2:D:918:ILE:HG12	2.00	0.44
6:G:21:ARG:HH12	6:G:27:GLN:HB2	1.81	0.44
6:G:113:ILE:HG13	6:G:117:GLN:HE21	1.82	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:463:GLN:HG3	1:C:505:PHE:HB2	2.00	0.44
1:C:545:PHE:HZ	2:D:781:LYS:HA	1.82	0.44
1:C:1246:ARG:HD3	1:C:1267:GLY:N	2.31	0.44
2:D:147:ILE:HG13	2:D:147:ILE:O	2.18	0.44
2:D:1089:LEU:HA	2:D:1097:ALA:HB2	1.99	0.44
6:G:61:TYR:CE2	6:G:65:ILE:HD11	2.52	0.44
7:I:54:DG:H1'	7:I:55:DC:H5'	1.99	0.44
1:C:165:HIS:CD2	1:C:190:PRO:HD3	2.53	0.44
1:C:661:VAL:HB	1:C:665:ALA:HB3	2.00	0.44
2:D:151:MET:HE2	6:G:45:MET:SD	2.58	0.44
2:D:319:SER:HB2	8:H:25:DA:C6	2.53	0.44
2:D:335:GLN:HB2	2:D:342:LEU:HD23	1.99	0.44
2:D:915:ILE:HD12	2:D:1255:VAL:HG11	2.00	0.44
2:D:1181:ASP:OD1	2:D:1181:ASP:N	2.50	0.44
4:F:397:ARG:O	8:H:26:DG:N2	2.51	0.44
6:G:89:ALA:HB2	6:G:104:TYR:CG	2.52	0.44
1:C:848:GLU:HG2	1:C:888:THR:HG22	2.00	0.44
4:F:344:LEU:O	4:F:348:GLU:HG3	2.17	0.44
6:G:21:ARG:NH1	6:G:27:GLN:H	2.16	0.44
1:C:615:VAL:HG13	1:C:650:VAL:HA	2.00	0.44
1:C:1274:GLU:HG2	2:D:424:ASN:ND2	2.33	0.44
2:D:342:LEU:HA	2:D:343:LEU:HA	1.63	0.44
2:D:1348:LYS:O	2:D:1352:ILE:HG12	2.18	0.44
1:C:758:ARG:HG3	1:C:833:ILE:O	2.18	0.44
1:C:1102:GLY:HA2	1:C:1106:ARG:HH21	1.82	0.44
1:C:1303:LYS:HD3	1:C:1316:GLU:HG3	2.00	0.44
2:D:360:TYR:OH	2:D:448:GLN:OE1	2.19	0.44
3:E:38:LEU:HB2	3:E:53:GLU:OE1	2.18	0.44
4:F:162:ILE:HA	4:F:261:LEU:HA	2.00	0.44
1:C:543:ALA:HA	1:C:544:GLY:C	2.43	0.43
1:C:700:VAL:O	1:C:1069:ARG:NH2	2.47	0.43
1:C:1246:ARG:HH12	1:C:1250:SER:N	2.16	0.43
1:C:1267:GLY:HA3	2:D:347:VAL:O	2.18	0.43
1:C:1274:GLU:HG2	2:D:424:ASN:HD21	1.83	0.43
2:D:789:LYS:HE2	2:D:931:THR:HA	2.00	0.43
2:D:824:PRO:HB3	2:D:835:LEU:N	2.32	0.43
5:A:58:GLU:HB3	5:A:170:ARG:HD3	2.00	0.43
1:C:554:HIS:HD2	1:C:558:VAL:HB	1.82	0.43
1:C:813:GLU:HB2	2:D:461:PHE:CD2	2.52	0.43
2:D:72:CYS:SG	2:D:74:LYS:HE2	2.58	0.43
2:D:207:GLU:OE2	6:G:106:GLY:N	2.48	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:337:ARG:HH22	2:D:339:ARG:NH1	2.06	0.43
2:D:1024:THR:HG21	2:D:1123:ARG:HD3	2.00	0.43
6:G:29:GLN:C	6:G:31:LYS:H	2.26	0.43
6:G:73:TRP:CE3	6:G:112:LEU:HD13	2.53	0.43
1:C:561:ILE:HD11	1:C:665:ALA:HB1	2.00	0.43
1:C:1313:HIS:HB3	2:D:474:LEU:N	2.31	0.43
2:D:747:MET:SD	2:D:775:SER:HA	2.58	0.43
2:D:1295:ASN:HD21	2:D:1297:LYS:HD3	1.83	0.43
2:D:1297:LYS:HA	2:D:1298:VAL:HA	1.69	0.43
5:B:73:GLY:N	5:B:136:GLU:OE1	2.36	0.43
1:C:65:ASN:HB3	1:C:105:TYR:HD2	1.84	0.43
1:C:206:ALA:O	1:C:209:ILE:HG22	2.18	0.43
1:C:590:PRO:HB2	1:C:655:VAL:HG11	2.00	0.43
2:D:64:PRO:HG3	2:D:93:THR:H	1.83	0.43
2:D:708:ASN:HA	2:D:713:GLU:HA	1.99	0.43
5:A:9:LEU:HD12	5:A:198:LEU:HD11	1.99	0.43
5:A:111:THR:HG22	5:A:129:VAL:HA	2.00	0.43
1:C:207:THR:O	1:C:211:ARG:HG2	2.18	0.43
1:C:255:ILE:HB	1:C:263:VAL:HB	2.00	0.43
1:C:1083:GLU:OE1	5:A:49:SER:HB3	2.18	0.43
2:D:156:ARG:HB3	6:G:30:ASN:CG	2.44	0.43
2:D:405:GLU:O	2:D:408:VAL:HG22	2.18	0.43
2:D:523:GLU:HG3	2:D:546:ALA:HB1	2.01	0.43
5:A:159:ILE:HD12	5:A:159:ILE:HA	1.93	0.43
5:A:165:GLU:OE2	5:A:170:ARG:NH1	2.38	0.43
5:B:192:VAL:HG22	5:B:193:GLU:OE1	2.19	0.43
7:I:16:DC:H2"	7:I:17:DG:H8	1.84	0.43
1:C:1125:GLY:HA3	1:C:1179:GLY:HA2	1.99	0.43
2:D:261:ALA:HB1	4:F:507:MET:SD	2.58	0.43
6:G:100:LEU:HB2	6:G:105:CYS:SG	2.58	0.43
1:C:349:GLU:N	1:C:349:GLU:OE1	2.52	0.43
1:C:1123:GLY:HA3	1:C:1204:LEU:HD11	2.01	0.43
1:C:1269:ARG:HD3	2:D:344:GLY:HA3	2.01	0.43
4:F:90:GLU:N	4:F:103:ARG:HG3	2.32	0.43
1:C:1213:TYR:HA	1:C:1220:GLN:HA	2.01	0.43
1:C:705:GLU:HB3	1:C:794:LEU:H	1.84	0.43
1:C:732:ILE:HD11	1:C:769:PRO:HB3	2.01	0.43
1:C:1122:LYS:HG2	1:C:1229:TYR:CE1	2.54	0.43
2:D:582:ILE:HG23	2:D:623:GLN:HB3	2.01	0.43
2:D:1154:ALA:HB3	2:D:1215:GLU:HG3	2.01	0.43
4:F:261:LEU:H	4:F:261:LEU:HD23	1.84	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:79:LEU:HD12	5:B:80:GLU:N	2.34	0.43
9:J:19:U:H2'	9:J:20:A:C8	2.54	0.43
1:C:375:PRO:HD3	4:F:103:ARG:HD2	2.01	0.42
1:C:646:SER:HB3	1:C:649:GLN:OE1	2.19	0.42
2:D:331:ILE:HG22	2:D:1328:THR:HG21	2.00	0.42
5:A:158:ARG:HH11	5:A:158:ARG:HG2	1.83	0.42
5:B:110:VAL:HG21	5:B:140:ILE:HG21	2.00	0.42
1:C:392:GLU:H	1:C:392:GLU:CD	2.27	0.42
2:D:260:PHE:O	4:F:505:ILE:N	2.47	0.42
2:D:750:PRO:O	2:D:751:ASP:HB2	2.19	0.42
2:D:865:HIS:CE1	2:D:867:GLN:HB2	2.54	0.42
4:F:162:ILE:HD12	4:F:165:PHE:CE2	2.52	0.42
4:F:339:ARG:HA	4:F:339:ARG:HD2	1.84	0.42
5:A:60:GLU:HB3	5:A:143:ARG:HB2	2.01	0.42
5:B:228:LEU:O	5:B:229:GLU:C	2.61	0.42
1:C:798:GLN:OE1	1:C:827:ARG:HB2	2.19	0.42
2:D:46:TYR:CE2	2:D:47:ARG:HG2	2.53	0.42
2:D:909:ILE:HD11	2:D:913:GLU:HG2	2.01	0.42
8:H:47:DT:H2''	8:H:48:DT:C6	2.53	0.42
1:C:1232:MET:HE3	1:C:1232:MET:HB2	1.90	0.42
2:D:47:ARG:HG3	2:D:48:THR:H	1.84	0.42
2:D:1101:LEU:HB3	2:D:1105:ALA:HB3	2.02	0.42
4:F:471:LEU:HD12	4:F:478:PRO:HD3	2.01	0.42
5:B:99:ILE:HB	5:B:145:LYS:NZ	2.35	0.42
1:C:244:GLU:HA	1:C:247:ARG:NH1	2.34	0.42
1:C:268:ARG:HE	1:C:269:ILE:N	2.17	0.42
1:C:1060:ILE:HD11	1:C:1076:ILE:HD12	2.01	0.42
2:D:1034:PHE:HE1	2:D:1114:GLN:HG2	1.83	0.42
4:F:272:SER:O	4:F:276:MET:HG2	2.20	0.42
4:F:487:MET:N	4:F:487:MET:SD	2.93	0.42
4:F:548:LEU:HD23	4:F:551:LEU:HD12	2.02	0.42
6:G:18:LYS:HZ2	6:G:38:LEU:HD13	1.84	0.42
1:C:818:VAL:HG13	1:C:822:VAL:HG21	2.00	0.42
2:D:304:ASP:OD2	2:D:312:ARG:NH1	2.52	0.42
2:D:343:LEU:HA	2:D:344:GLY:HA2	1.65	0.42
4:F:366:SER:HA	4:F:369:GLU:CD	2.45	0.42
5:A:182:ARG:HH12	5:A:204:GLU:CD	2.27	0.42
6:G:94:THR:C	6:G:96:CYS:H	2.27	0.42
1:C:31:GLN:C	1:C:130:MET:HE1	2.45	0.42
1:C:183:TRP:CH2	7:I:49:DT:H2''	2.55	0.42
1:C:514:PHE:HE2	8:H:22:DC:C4	2.37	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:785:ASP:OD2	1:C:791:LEU:N	2.45	0.42
1:C:1030:GLU:CD	1:C:1033:ARG:HH21	2.28	0.42
2:D:123:ARG:HD3	2:D:126:LEU:HD21	2.01	0.42
9:J:16:A:H2'	9:J:17:G:C8	2.55	0.42
2:D:368:LEU:HD12	2:D:369:PRO:HD2	2.01	0.42
2:D:418:GLU:H	3:E:45:LYS:NZ	2.16	0.42
2:D:654:ILE:HD13	2:D:760:THR:HB	2.01	0.42
2:D:658:GLU:HA	2:D:661:VAL:HG22	2.02	0.42
3:E:60:ASN:OD1	3:E:63:ILE:HD12	2.20	0.42
4:F:366:SER:HA	4:F:369:GLU:OE2	2.20	0.42
5:A:165:GLU:OE2	5:A:170:ARG:HD2	2.20	0.42
1:C:545:PHE:CZ	2:D:781:LYS:HA	2.55	0.41
1:C:657:THR:OG1	1:C:1187:PHE:HB2	2.19	0.41
1:C:714:VAL:HB	1:C:787:PRO:HD2	2.02	0.41
1:C:807:TRP:CZ2	1:C:1216:ARG:HD2	2.55	0.41
1:C:930:ASP:OD2	1:C:931:VAL:N	2.52	0.41
1:C:965:GLN:NE2	1:C:966:ILE:HG13	2.34	0.41
1:C:1069:ARG:NH1	1:C:1114:GLU:OE2	2.53	0.41
1:C:1272:GLU:HG2	2:D:342:LEU:HD22	2.01	0.41
2:D:442:ILE:CD1	2:D:448:GLN:HG3	2.50	0.41
2:D:504:GLN:HG3	2:D:505:ASP:N	2.35	0.41
2:D:1325:PHE:HE2	2:D:1348:LYS:HG3	1.84	0.41
2:D:99:ARG:HA	2:D:248:ASP:HB2	2.02	0.41
2:D:1173:ARG:NH2	2:D:1175:LEU:HB2	2.35	0.41
2:D:1194:ARG:HD2	2:D:1194:ARG:HA	1.91	0.41
5:B:96:ASP:HA	5:B:148:ARG:HG3	2.01	0.41
8:H:28:DC:H5	8:H:29:DT:C5	2.39	0.41
8:H:61:DC:H2''	8:H:62:DG:N7	2.35	0.41
1:C:400:VAL:O	1:C:403:MET:HG3	2.20	0.41
1:C:1281:TYR:CD2	2:D:484:MET:HE1	2.55	0.41
1:C:1304:MET:O	1:C:1308:ILE:HG12	2.20	0.41
3:E:29:GLN:HB3	3:E:35:LYS:HG3	2.02	0.41
4:F:102:MET:HB2	4:F:103:ARG:HH11	1.84	0.41
1:C:39:ILE:HD11	1:C:75:LEU:HG	2.03	0.41
1:C:561:ILE:HD11	1:C:671:LEU:HD21	2.03	0.41
1:C:1329:GLU:OE2	2:D:330:MET:HB2	2.20	0.41
2:D:174:ASP:OD2	6:G:58:ARG:NH2	2.53	0.41
2:D:349:TYR:CD1	2:D:472:LEU:HD21	2.55	0.41
4:F:362:ASN:OD1	4:F:363:ARG:N	2.53	0.41
1:C:27:LEU:HD12	1:C:711:ASP:HB2	2.01	0.41
1:C:817:LEU:HD11	1:C:1080:ASN:HD21	1.85	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1142:ARG:NH1	1:C:1165:SER:HA	2.33	0.41
1:C:1270:PHE:CZ	1:C:1290:MET:HG3	2.54	0.41
2:D:200:GLN:HG3	6:G:74:ILE:HD11	2.02	0.41
2:D:218:THR:HA	2:D:221:ILE:HG22	2.03	0.41
2:D:278:ARG:HD3	4:F:407:GLU:OE1	2.20	0.41
2:D:958:ILE:HD13	2:D:958:ILE:HA	1.95	0.41
2:D:1063:ASP:HB3	2:D:1104:LYS:HE3	2.02	0.41
2:D:1173:ARG:HH22	2:D:1175:LEU:HB2	1.85	0.41
3:E:60:ASN:OD1	3:E:62:GLN:N	2.53	0.41
4:F:141:ILE:HD12	4:F:256:PHE:CE2	2.55	0.41
5:A:86:LYS:NZ	5:A:174:ASP:HB2	2.35	0.41
1:C:22:LEU:HD23	1:C:23:ASP:O	2.19	0.41
1:C:103:VAL:HG12	1:C:116:ASP:HB3	2.01	0.41
1:C:1243:MET:HE3	2:D:445:LYS:HB3	2.01	0.41
8:H:4:DT:H2"	8:H:5:DA:H8	1.86	0.41
1:C:374:GLU:O	1:C:375:PRO:C	2.64	0.41
1:C:788:SER:HB3	1:C:796:LEU:HA	2.03	0.41
1:C:838:CYS:HB2	1:C:918:LEU:HD22	2.02	0.41
1:C:1102:GLY:O	1:C:1106:ARG:HB2	2.20	0.41
2:D:265:LEU:HD11	2:D:330:MET:SD	2.61	0.41
2:D:506:VAL:HG21	2:D:625:MET:HA	2.02	0.41
2:D:568:SER:HB3	2:D:570:LYS:NZ	2.36	0.41
2:D:704:GLU:HB3	2:D:718:SER:OG	2.20	0.41
2:D:1157:ALA:O	2:D:1206:ARG:HA	2.20	0.41
2:D:1298:VAL:N	2:D:1299:GLY:HA3	2.34	0.41
4:F:138:PRO:O	4:F:142:THR:HG23	2.20	0.41
4:F:380:VAL:HG21	4:F:413:MET:HG2	2.02	0.41
4:F:496:LYS:O	4:F:500:ILE:HG12	2.21	0.41
4:F:562:ARG:HH21	8:H:49:DC:P	2.44	0.41
5:B:13:LEU:HD12	5:B:13:LEU:O	2.20	0.41
1:C:98:VAL:O	1:C:122:VAL:HG12	2.19	0.41
1:C:257:ALA:HB3	1:C:262:TYR:CE2	2.55	0.41
1:C:890:LYS:H	1:C:913:VAL:HA	1.86	0.41
1:C:903:ARG:HH11	1:C:909:LYS:HE3	1.86	0.41
2:D:102:MET:HE2	2:D:102:MET:HB3	1.97	0.41
2:D:244:VAL:HG23	2:D:269:TYR:CE1	2.55	0.41
2:D:436:ALA:HB3	2:D:485:MET:HA	2.02	0.41
5:B:133:LEU:HD11	5:B:140:ILE:HB	2.03	0.41
1:C:62:TYR:CE2	1:C:476:LYS:HD3	2.56	0.41
1:C:98:VAL:HG12	1:C:100:LEU:HG	2.03	0.41
1:C:255:ILE:HD12	1:C:263:VAL:HB	2.02	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:190:LYS:HG2	2:D:235:GLU:OE1	2.21	0.41
2:D:443:GLU:HG3	5:B:196:THR:HB	2.02	0.41
2:D:525:MET:HE2	2:D:525:MET:HB3	1.96	0.41
2:D:708:ASN:OD1	2:D:708:ASN:N	2.54	0.41
2:D:720:ASN:OD1	2:D:722:ILE:HG22	2.21	0.41
3:E:72:GLN:HA	3:E:75:GLN:HE21	1.85	0.41
4:F:244:THR:O	4:F:248:GLU:HG2	2.21	0.41
5:A:63:GLY:HA3	5:A:71:LYS:HD2	2.02	0.41
9:J:16:A:H2'	9:J:17:G:H8	1.84	0.41
1:C:694:ARG:NE	5:A:83:LEU:HD21	2.36	0.41
1:C:951:MET:HE2	1:C:954:LYS:NZ	2.36	0.41
1:C:1276:TRP:CE2	2:D:801:VAL:HG11	2.56	0.41
2:D:119:SER:OG	2:D:121:PRO:O	2.35	0.41
2:D:490:ILE:HG13	2:D:491:LEU:HG	2.02	0.41
2:D:825:VAL:CG1	2:D:833:GLU:HB3	2.49	0.41
5:A:29:GLU:HA	5:A:200:LYS:HB2	2.03	0.41
5:B:182:ARG:NH2	5:B:204:GLU:OE2	2.54	0.41
9:J:18:G:H2'	9:J:19:U:C6	2.56	0.41
1:C:726:TYR:CZ	1:C:728:ASP:HB2	2.56	0.40
1:C:1058:ARG:HD2	1:C:1238:LEU:CD2	2.50	0.40
1:C:1251:TYR:OH	1:C:1301:ARG:HD3	2.21	0.40
2:D:252:LEU:HD12	2:D:261:ALA:O	2.21	0.40
2:D:452:LEU:HG	2:D:625:MET:SD	2.61	0.40
3:E:68:GLU:OE2	3:E:69:ARG:HD3	2.21	0.40
1:C:346:TYR:O	1:C:350:THR:OG1	2.32	0.40
1:C:1085:MET:HE2	1:C:1085:MET:HA	2.02	0.40
2:D:504:GLN:HG3	2:D:505:ASP:H	1.86	0.40
2:D:977:SER:H	2:D:999:TYR:HD1	1.66	0.40
4:F:280:VAL:O	4:F:284:GLU:HG3	2.20	0.40
7:I:17:DG:C6	7:I:18:DA:C6	3.10	0.40
7:I:18:DA:H2''	7:I:19:DA:C8	2.56	0.40
1:C:56:VAL:HG13	1:C:57:PHE:CD1	2.56	0.40
1:C:676:ALA:HB3	2:D:779:ALA:HB2	2.03	0.40
1:C:678:ARG:HH21	1:C:1106:ARG:HG2	1.86	0.40
1:C:950:GLU:HG2	1:C:954:LYS:NZ	2.34	0.40
2:D:53:ARG:HA	2:D:54:ASP:HA	1.58	0.40
3:E:25:ARG:HH21	3:E:64:LEU:HB3	1.86	0.40
4:F:113:ARG:O	4:F:117:ILE:HG13	2.22	0.40
7:I:37:DA:H2''	7:I:38:DT:OP1	2.22	0.40
1:C:71:VAL:HB	1:C:99:LYS:HB2	2.04	0.40
1:C:519:ASN:HB2	1:C:522:SER:H	1.86	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:720:ARG:NH2	1:C:736:VAL:HG11	2.37	0.40
1:C:841:ARG:HA	1:C:1046:VAL:HA	2.03	0.40
3:E:6:VAL:O	3:E:10:VAL:HG23	2.22	0.40
4:F:548:LEU:HD22	4:F:556:ALA:HA	2.03	0.40
5:B:98:VAL:HG13	5:B:146:VAL:HG23	2.04	0.40
1:C:128:PRO:HG2	1:C:506:PHE:CG	2.55	0.40
1:C:325:LEU:HD13	1:C:333:ILE:HD11	2.04	0.40
1:C:689:ALA:CB	1:C:1233:LEU:HD12	2.52	0.40
1:C:1088:ASP:OD1	1:C:1092:THR:N	2.55	0.40
2:D:826:ILE:HG12	2:D:831:VAL:HB	2.03	0.40
2:D:860:ARG:NE	2:D:861:ASN:H	2.16	0.40
4:F:313:ASP:HA	4:F:316:PHE:HD1	1.86	0.40
4:F:479:THR:HB	4:F:482:GLU:OE1	2.21	0.40
5:A:33:ARG:HE	5:A:198:LEU:N	2.20	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 PDB entries followed by that with respect to all EM entries.

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	C	1338/1340 (100%)	1284 (96%)	52 (4%)	2 (0%)	48	79
2	D	1348/1363 (99%)	1279 (95%)	64 (5%)	5 (0%)	30	64
3	E	74/76 (97%)	70 (95%)	4 (5%)	0	100	100
4	F	466/523 (89%)	447 (96%)	18 (4%)	1 (0%)	44	75
5	A	228/231 (99%)	216 (95%)	11 (5%)	1 (0%)	30	64
5	B	226/231 (98%)	219 (97%)	6 (3%)	1 (0%)	30	64
6	G	127/129 (98%)	118 (93%)	8 (6%)	1 (1%)	16	51
All	All	3807/3893 (98%)	3633 (95%)	163 (4%)	11 (0%)	38	68

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	D	46	TYR
2	D	314	ARG
4	F	491	GLU
5	A	195	ARG
5	B	136	GLU
6	G	10	VAL
2	D	903	LEU
1	C	63	SER
2	D	148	GLU
2	D	559	ALA
1	C	1223	ARG

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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	C	1155/1155 (100%)	1155 (100%)	0	100	100
2	D	1129/1136 (99%)	1128 (100%)	1 (0%)	92	97
3	E	65/65 (100%)	65 (100%)	0	100	100
4	F	420/463 (91%)	420 (100%)	0	100	100
5	A	198/199 (100%)	198 (100%)	0	100	100
5	B	196/199 (98%)	196 (100%)	0	100	100
6	G	112/112 (100%)	112 (100%)	0	100	100
All	All	3275/3329 (98%)	3274 (100%)	1 (0%)	100	100

All (1) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	D	716	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (32) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	120	GLN
1	C	613	ASN
1	C	618	GLN
1	C	622	ASN
1	C	688	GLN
1	C	761	GLN
1	C	799	ASN
1	C	824	GLN
1	C	834	GLN
1	C	1008	GLN
1	C	1010	GLN
1	C	1013	GLN
2	D	200	GLN
2	D	320	ASN
2	D	667	GLN
2	D	716	GLN
2	D	739	GLN
2	D	805	GLN
2	D	907	HIS
2	D	910	ASN
2	D	1098	GLN
2	D	1259	GLN
2	D	1367	GLN
3	E	29	GLN
3	E	31	GLN
4	F	128	ASN
4	F	131	GLN
4	F	357	GLN
4	F	464	ASN
4	F	545	HIS
5	A	75	GLN
5	B	93	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
9	J	4/5 (80%)	0	0

There are no RNA backbone outliers to report.

There are no RNA pucker outliers to report.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.