



Full wwPDB X-ray Structure Validation Report ⓘ

May 27, 2020 – 01:46 am BST

PDB ID : 3AN2
Title : The structure of the centromeric nucleosome containing CENP-A
Authors : Tachiwana, H.; Kagawa, W.; Shiga, T.; Saito, K.; Osakabe, A.; Hayashi-Takanaka, Y.; Park, S.-Y.; Kimura, H.; Kurumizaka, H.
Deposited on : 2010-08-27
Resolution : 3.60 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.11
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.11

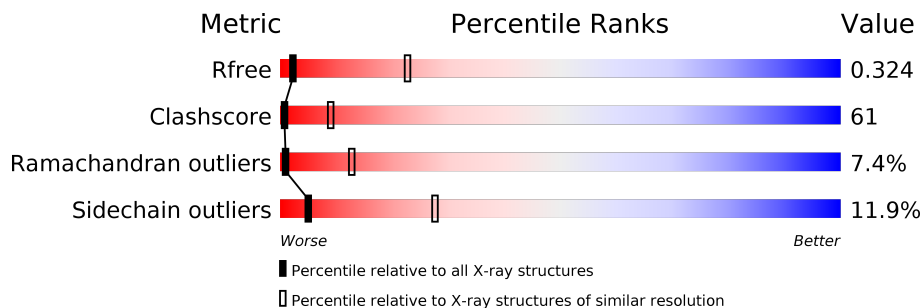
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.60 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.





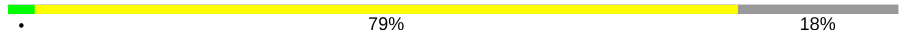
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1257 (3.70-3.50)
Clashscore	141614	1353 (3.70-3.50)
Ramachandran outliers	138981	1307 (3.70-3.50)
Sidechain outliers	138945	1307 (3.70-3.50)

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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$

Mol	Chain	Length	Quality of chain
1	A	143	12% (green), 40% (yellow), 10% (orange), 38% (grey)
1	E	143	12% (green), 39% (yellow), 7% (orange), 42% (grey)
2	B	106	15% (green), 41% (yellow), 17% (orange), 26% (grey)
2	F	106	11% (green), 53% (yellow), 10% (orange), 25% (grey)
3	C	133	20% (green), 45% (yellow), 8% (orange), 27% (grey)
3	G	133	23% (green), 44% (yellow), 8% (orange), 25% (grey)
4	D	129	17% (green), 42% (yellow), 11% (orange), 30% (grey)

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
4	H	129	
5	I	147	
5	J	147	

2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 10542 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 Histone H3-like centromeric protein A.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	89	732	477	136	118	1	0	0	0
1	E	83	685	449	126	109	1	0	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	GLY	-	EXPRESSION TAG	UNP P49450
A	-1	SER	-	EXPRESSION TAG	UNP P49450
A	0	HIS	-	EXPRESSION TAG	UNP P49450
E	-2	GLY	-	EXPRESSION TAG	UNP P49450
E	-1	SER	-	EXPRESSION TAG	UNP P49450
E	0	HIS	-	EXPRESSION TAG	UNP P49450

- Molecule 2 is a protein called Histone H4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	78	619	391	120	107	1	0	0	0
2	F	79	627	395	121	110	1	0	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	-3	GLY	-	EXPRESSION TAG	UNP B2R4R0
B	-2	SER	-	EXPRESSION TAG	UNP B2R4R0
B	-1	HIS	-	EXPRESSION TAG	UNP B2R4R0
F	-3	GLY	-	EXPRESSION TAG	UNP B2R4R0
F	-2	SER	-	EXPRESSION TAG	UNP B2R4R0
F	-1	HIS	-	EXPRESSION TAG	UNP B2R4R0

- Molecule 3 is a protein called Histone H2A type 1-B/E.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
3	C	97	Total	C	N	O	0	0	0
			752	471	148	133			
3	G	100	Total	C	N	O	0	0	0
			773	485	152	136			

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	-3	GLY	-	EXPRESSION TAG	UNP P04908
C	-2	SER	-	EXPRESSION TAG	UNP P04908
C	-1	HIS	-	EXPRESSION TAG	UNP P04908
G	-3	GLY	-	EXPRESSION TAG	UNP P04908
G	-2	SER	-	EXPRESSION TAG	UNP P04908
G	-1	HIS	-	EXPRESSION TAG	UNP P04908

- Molecule 4 is a protein called Histone H2B type 1-J.

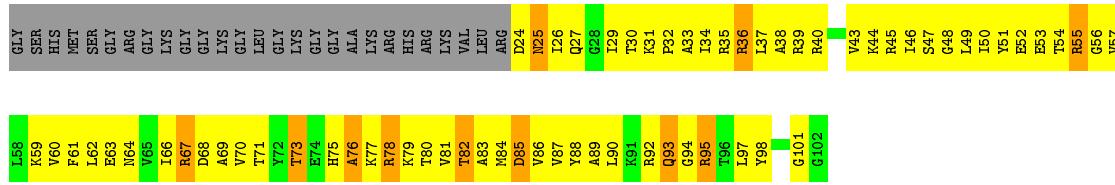
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	Se			
4	D	90	Total	C	N	O	Se	0	0	0
			699	441	123	133	2			
4	H	90	Total	C	N	O	Se	0	0	0
			699	441	123	133	2			

There are 6 discrepancies between the modelled and reference sequences:

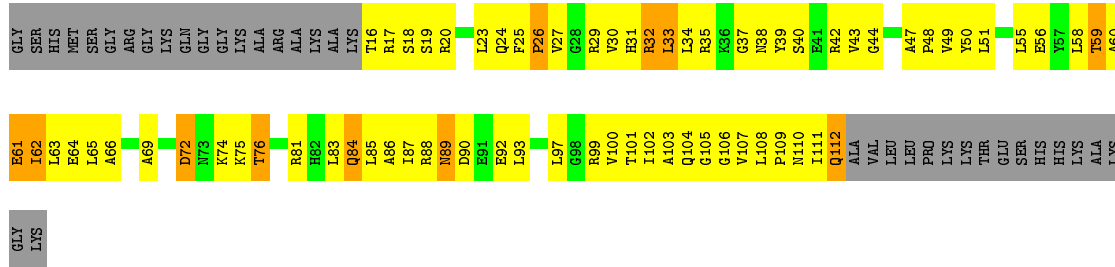
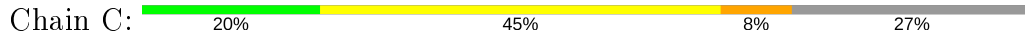
Chain	Residue	Modelled	Actual	Comment	Reference
D	-3	GLY	-	EXPRESSION TAG	UNP P06899
D	-2	SER	-	EXPRESSION TAG	UNP P06899
D	-1	HIS	-	EXPRESSION TAG	UNP P06899
H	-3	GLY	-	EXPRESSION TAG	UNP P06899
H	-2	SER	-	EXPRESSION TAG	UNP P06899
H	-1	HIS	-	EXPRESSION TAG	UNP P06899

- Molecule 5 is a DNA chain called 147 mer DNA.

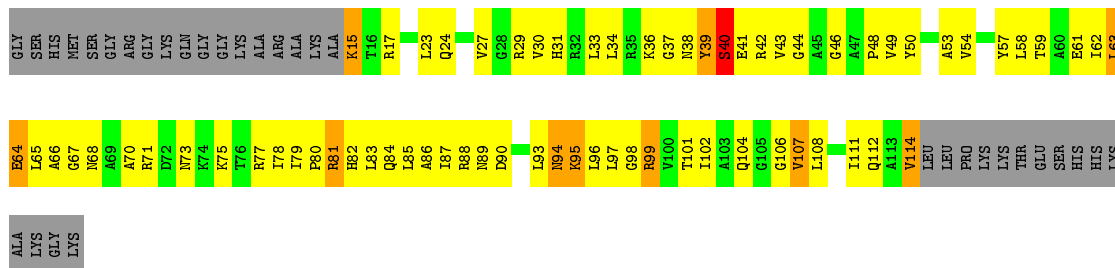
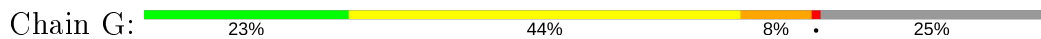
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
5	I	121	Total	C	N	O	P	0	0	0
			2478	1187	448	723	120			
5	J	121	Total	C	N	O	P	0	0	0
			2478	1187	448	723	120			



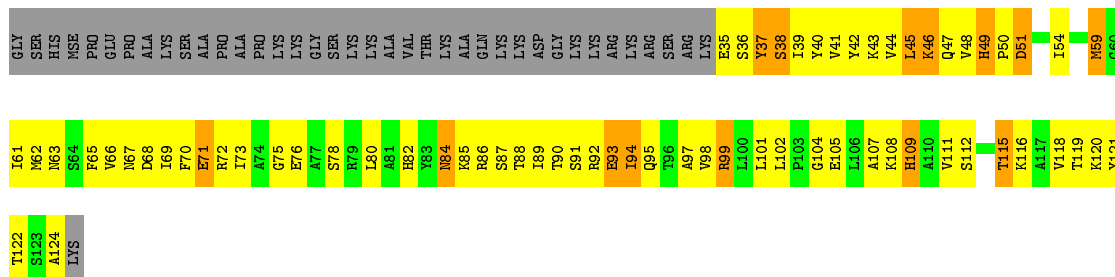
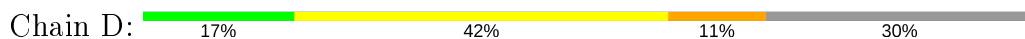
• Molecule 3: Histone H2A type 1-B/E



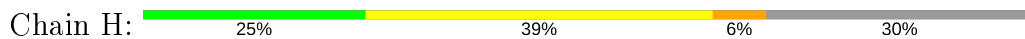
• Molecule 3: Histone H2A type 1-B/E



• Molecule 4: Histone H2B type 1-J



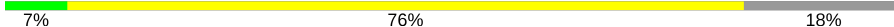
• Molecule 4: Histone H2B type 1-J



GLY SER HIS MSE PRO GLU PRO ALA SER PRO ALA PRO LYS LYS GLY SER LYS LYS LYS ASP GLY LYS LYS ARG ARG ARG SER ARG LYS E35 S36 Y37 V41 Y42 K43 V44 L45 K46 Q47 V48 H49 P50 D51 T52 G53 I54 S55 S56 K57 A58

M59 G60 I61 M62 N63 S64 F65 V66 M67 D68 I69 F70 E71 R72 I73 A74 G75 S78 A79 L80 A81 H82 THR Y83 N84 K85 R86 S87 T88 E93 I94 Q95 T96 A97 V98 R99 L100 L101 G104 E105 A110 V111 S112 E113 G114 T115 K116 A117 V118 T119 K120 Y121 A124 LYS

- Molecule 5: 147 mer DNA

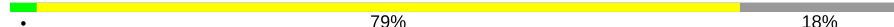
Chain I:  7% 76% 18%

DA DT DC DC DT DT DC DG DT DA A-60 G-56 G-55 A-54 T-53 T-52 T-51 C-50 T-49 T-48 C-47 A-46 T-45 T-44 T-43 C-42 G-39 C-38 T-37 A-36 A-35 A-34 C-33 C-32 G-31 A-30 A-29 G-28 G-27 A-26 T-25 T-24 C-23 T-22 C-21 A-20 G-19 T-18 A-17 A-16 C-15 T-14 T-13 C-12 T-11

T-10 T-9 G-8 T-7 G-6 C-5 T-4 G-3 G-2 T-1 A0 A1 C2 C3 C4 C5 C6 C7 C8 C9 A10 A11 A12 A13 A14 G15 T16 T17 A18 A19 C19 T20 G21 A22 G23 A24 A25 T26 T27 C28 T29 T30 T31 T32 T33 T34 C35 T36 A37 G38 C39 A40 T41 G42 A43 A44 A45 T46 G47 A48 A49

G50 A51 A52 T54 C55 C56 C57 G58 T59 T60 DT DC DA DC DA DA DA DA DA DA DT

- Molecule 5: 147 mer DNA

Chain J:  79% 18%

DA DT DC DC DT DT DC DG DT DA A-60 A-59 C-58 G-55 A-54 T-53 T-52 T-51 C-50 T-49 T-48 C-47 A-46 T-45 T-44 T-43 C-42 A-41 T-40 T-39 G-38 C-37 T-36 A-35 G-34 A-33 C-32 T-31 A-30 G-29 G-28 A-27 A-26 T-25 T-24 C-23 C-22 T-21 C-20 T-19 G-18 A-17 A-16 C-15 T-14 T-13 T-12 T-11

C-12 T-11 T-10 T-9 G-8 T-7 C-6 C-5 T-4 G-3 G-2 T-1 A0 A1 C2 C3 C4 C5 C6 C7 C8 C9 A10 A11 A12 A13 A14 G15 T16 T17 T18 A19 A20 A21 A22 A23 A24 A25 T26 T27 C28 T29 T30 T31 T32 T33 T34 C35 T36 A37 G38 C39 A40 T41 G42 A43 A44 A45 T46 G47

A48 A49 G50 A51 A52 A53 T54 C55 C56 C57 G58 T59 T60 DT DC DA DA DA DA DA DA DA DA DT

4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	65.84Å 83.29Å 176.83Å 90.00° 100.70° 90.00°	Depositor
Resolution (Å)	50.00 – 3.60 47.18 – 3.58	Depositor EDS
% Data completeness (in resolution range)	(Not available) (50.00-3.60) 95.0 (47.18-3.58)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.10	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.96 (at 3.57Å)	Xtrriage
Refinement program	CNS 1.21	Depositor
R, R_{free}	0.271 , 0.325 0.271 , 0.324	Depositor DCC
R_{free} test set	1089 reflections (5.12%)	wwPDB-VP
Wilson B-factor (Å ²)	85.5	Xtrriage
Anisotropy	0.441	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 31.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.38$, $\langle L^2 \rangle = 0.20$	Xtrriage
Estimated twinning fraction	0.339 for h,-k,-h-l	Xtrriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	10542	wwPDB-VP
Average B, all atoms (Å ²)	106.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.91% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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	0.41	0/747	0.67	0/1006
1	E	0.39	0/697	0.70	0/936
2	B	0.44	0/626	0.74	0/837
2	F	0.50	0/634	0.93	2/848 (0.2%)
3	C	0.44	0/761	0.72	0/1027
3	G	0.56	1/782 (0.1%)	0.79	0/1055
4	D	0.51	0/708	0.85	0/951
4	H	0.45	0/708	0.72	0/951
5	I	0.36	0/2780	0.75	0/4289
5	J	0.38	0/2780	0.75	0/4289
All	All	0.42	1/11223 (0.0%)	0.76	2/16189 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	G	114	VAL	CA-CB	6.13	1.67	1.54

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	76	ALA	N-CA-C	-9.91	84.25	111.00
2	F	76	ALA	C-N-CA	-5.45	108.08	121.70

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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	732	0	770	135	0
1	E	685	0	731	135	0
2	B	619	0	659	127	0
2	F	627	0	663	122	0
3	C	752	0	792	114	0
3	G	773	0	819	95	0
4	D	699	0	714	100	0
4	H	699	0	714	76	0
5	I	2478	0	1370	224	0
5	J	2478	0	1370	272	0
All	All	10542	0	8602	1164	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 61.

All (1164) 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)
5:I:-9:DT:H2''	5:I:-8:DG:H5'	1.30	1.14
5:J:-52:DT:H2''	5:J:-51:DT:H5''	1.13	1.11
5:J:52:DA:H2''	5:J:53:DA:H5''	1.24	1.10
5:I:-30:DA:H2''	5:I:-29:DA:H5''	1.32	1.09
5:J:21:DG:H2''	5:J:22:DA:H5'	1.36	1.08
5:J:18:DA:H2''	5:J:19:DC:H5''	1.34	1.07
2:B:67:ARG:HB3	2:B:67:ARG:HH11	1.18	1.06
5:I:22:DA:H2''	5:I:23:DG:H5''	1.35	1.06
3:G:87:ILE:HD12	3:G:102:ILE:HD11	1.38	1.06
5:I:-22:DT:H2''	5:I:-21:DC:H5''	1.37	1.05
5:J:9:DA:H2''	5:J:10:DA:H5''	1.33	1.05
5:I:28:DC:H2''	5:I:29:DT:C5'	1.87	1.05
1:E:61:LEU:HD12	2:F:37:LEU:HD23	1.39	1.05
5:J:44:DA:H2''	5:J:45:DA:H5'	1.32	1.04
2:F:67:ARG:HB3	2:F:67:ARG:NH1	1.72	1.03
5:J:29:DT:H2''	5:J:30:DT:H5''	1.39	1.03
5:I:18:DA:H2''	5:I:19:DC:H5'	1.38	1.01
5:J:-59:DA:H2''	5:J:-58:DC:H5''	1.42	1.01
5:J:4:DA:H2''	5:J:5:DG:H5''	1.38	1.01
5:I:-54:DA:H2''	5:I:-53:DT:H5'	1.42	1.01
2:B:93:GLN:HB2	2:B:95:ARG:HD3	1.44	1.00
3:C:69:ALA:HA	3:C:72:ASP:HB2	1.44	0.99
5:I:28:DC:H2''	5:I:29:DT:H5''	1.43	0.99
4:D:39:ILE:HG13	5:J:49:DA:OP2	1.62	0.98

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:J:54:DT:H2''	5:J:55:DC:H5'	1.45	0.98
5:J:28:DC:H2''	5:J:29:DT:H5'	1.40	0.98
1:E:113:THR:HG22	1:E:125:ASP:OD1	1.62	0.98
2:F:92:ARG:HH21	4:H:101:LEU:HD23	1.24	0.98
5:J:-1:DT:H2''	5:J:0:DA:H5''	1.44	0.97
5:J:26:DT:H1'	5:J:27:DT:H5''	1.48	0.95
1:A:130:ARG:HH11	2:B:57:VAL:HG22	1.30	0.94
3:C:42:ARG:HB3	4:D:87:SER:O	1.67	0.94
5:I:-50:DC:H2''	5:I:-49:DT:H5''	1.46	0.94
4:D:35:GLU:HA	5:J:49:DA:H5''	1.48	0.94
5:J:18:DA:H2''	5:J:19:DC:C5'	1.98	0.93
5:I:-27:DA:H2''	5:I:-26:DA:H5''	1.50	0.93
1:E:121:LEU:O	2:F:47:SER:HB2	1.69	0.93
5:J:40:DA:H2''	5:J:41:DT:H5'	1.48	0.93
1:E:69:ARG:HB2	1:E:69:ARG:HH11	1.33	0.93
5:I:20:DT:H2''	5:I:21:DG:H5'	1.46	0.93
3:C:65:LEU:HB2	3:C:86:ALA:HB1	1.52	0.91
3:G:23:LEU:HD11	3:G:53:ALA:HB2	1.51	0.91
3:C:29:ARG:HG2	3:C:33:LEU:HD12	1.53	0.90
5:J:-16:DA:H4'	5:J:-15:DC:H5'	1.53	0.90
1:E:72:ARG:O	1:E:76:VAL:HG23	1.71	0.90
1:A:112:LEU:HD21	1:E:132:ILE:HD11	1.54	0.89
5:I:42:DG:H2''	5:I:43:DA:H5''	1.55	0.88
2:B:67:ARG:NH1	2:B:67:ARG:HB3	1.89	0.88
1:E:69:ARG:HB2	1:E:69:ARG:NH1	1.89	0.88
5:I:-21:DC:H2''	5:I:-20:DA:H5'	1.54	0.88
5:J:51:DA:H2''	5:J:52:DA:O5'	1.73	0.88
5:I:55:DC:H2''	5:I:56:DC:H5'	1.54	0.87
5:J:-52:DT:C2'	5:J:-51:DT:H5''	2.02	0.87
1:E:67:PHE:HE1	2:F:62:LEU:HD11	1.39	0.87
5:I:-22:DT:C2'	5:I:-21:DC:H5''	2.04	0.87
5:I:-53:DT:H2''	5:I:-52:DT:H5'	1.54	0.87
3:C:90:ASP:HB3	3:C:93:LEU:HB2	1.56	0.87
5:I:-50:DC:H2''	5:I:-49:DT:C5'	2.05	0.87
5:J:52:DA:C2'	5:J:53:DA:H5''	2.05	0.86
3:G:102:ILE:HG23	4:H:61:ILE:HD13	1.58	0.86
5:J:41:DT:H2''	5:J:42:DG:H5''	1.58	0.86
2:B:64:ASN:HA	2:B:67:ARG:HH12	1.40	0.85
1:E:60:LEU:HD12	1:E:60:LEU:H	1.41	0.84
5:J:-18:DT:H2''	5:J:-17:DA:OP2	1.75	0.84
5:J:30:DT:H2''	5:J:31:DC:C5'	2.06	0.84

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:30:THR:HA	2:F:55:ARG:HH21	1.41	0.84
5:I:31:DC:H2''	5:I:32:DT:H5'	1.59	0.84
2:B:78:ARG:NH2	2:B:85:ASP:OD2	2.10	0.84
2:F:83:ALA:O	2:F:87:VAL:HG23	1.77	0.84
3:C:31:HIS:CD2	3:C:35:ARG:HH11	1.94	0.84
2:B:59:LYS:O	2:B:63:GLU:HG3	1.77	0.84
5:I:-20:DA:H2''	5:I:-19:DG:H5'	1.58	0.83
4:D:49:HIS:H	4:D:50:PRO:HD3	1.42	0.83
5:J:11:DA:H1'	5:J:12:DG:H5''	1.59	0.83
5:I:28:DC:H2''	5:I:29:DT:H5'	1.59	0.83
5:I:-53:DT:H2''	5:I:-52:DT:C5'	2.07	0.83
5:J:55:DC:H2''	5:J:56:DC:H5''	1.61	0.83
5:I:-53:DT:H1'	5:I:-52:DT:H5''	1.60	0.83
3:C:20:ARG:HH11	3:C:20:ARG:HG3	1.42	0.83
5:I:13:DA:H2''	5:I:14:DA:C8	2.14	0.82
3:C:88:ARG:HB2	3:C:108:LEU:HD21	1.60	0.82
4:H:41:VAL:HB	4:H:59:MSE:HE1	1.59	0.82
3:C:20:ARG:HG3	3:C:20:ARG:NH1	1.93	0.81
5:I:22:DA:C2'	5:I:23:DG:H5''	2.10	0.81
2:B:78:ARG:HH22	2:B:85:ASP:CG	1.84	0.81
5:J:52:DA:H2''	5:J:53:DA:C5'	2.07	0.81
5:J:18:DA:C2'	5:J:19:DC:H5''	2.10	0.81
5:J:-55:DG:H2''	5:J:-54:DA:H5''	1.63	0.81
5:I:12:DG:H1'	5:I:13:DA:H5''	1.60	0.81
1:A:124:LYS:HG2	1:E:115:HIS:HE1	1.46	0.81
5:J:9:DA:C2'	5:J:10:DA:H5''	2.10	0.81
3:C:84:GLN:HG2	3:C:102:ILE:HB	1.61	0.80
2:F:75:HIS:C	2:F:76:ALA:O	2.09	0.80
4:H:41:VAL:HG11	4:H:62:MSE:HB3	1.61	0.80
5:I:-14:DT:H2''	5:I:-13:DT:OP2	1.80	0.80
2:F:35:ARG:HG3	2:F:46:ILE:HD12	1.63	0.80
4:H:54:ILE:HD13	4:H:59:MSE:HG2	1.64	0.80
5:I:33:DG:H2''	5:I:34:DT:OP2	1.79	0.80
2:B:30:THR:HG21	5:I:-13:DT:H5''	1.64	0.79
3:C:102:ILE:HG23	4:D:61:ILE:HG12	1.62	0.79
3:G:87:ILE:CD1	3:G:102:ILE:HD11	2.12	0.79
5:J:0:DA:H2''	5:J:1:DA:H5'	1.63	0.79
3:C:106:GLY:N	1:E:58:THR:HG22	1.97	0.79
1:E:113:THR:HG21	1:E:121:LEU:HD23	1.62	0.79
3:G:17:ARG:HH12	3:G:31:HIS:HD2	1.30	0.79
2:F:92:ARG:NH2	4:H:101:LEU:HA	1.97	0.79

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:J:-47:DC:H2''	5:J:-46:DA:H5''	1.64	0.79
1:A:82:VAL:HG12	1:A:83:ASP:N	1.97	0.79
5:J:-28:DG:H2''	5:J:-27:DA:H5'	1.64	0.79
1:A:113:THR:HG22	1:A:125:ASP:OD2	1.82	0.78
5:I:18:DA:C2'	5:I:19:DC:H5'	2.14	0.78
3:G:111:ILE:HG22	3:G:112:GLN:N	1.97	0.78
5:I:1:DA:H2''	5:I:2:DC:H5'	1.65	0.78
5:J:-23:DC:H2''	5:J:-22:DT:H5'	1.63	0.78
5:J:26:DT:C2'	5:J:27:DT:H5''	2.13	0.78
5:J:26:DT:C1'	5:J:27:DT:H5''	2.13	0.78
5:J:26:DT:H2''	5:J:27:DT:H5''	1.66	0.78
5:J:24:DA:H2''	5:J:25:DA:H5'	1.66	0.77
2:F:24:ASP:OD2	2:F:27:GLN:HG2	1.83	0.77
4:D:48:VAL:HG23	4:D:48:VAL:O	1.84	0.77
5:I:-3:DG:H2''	5:I:-2:DG:H5''	1.67	0.77
3:C:62:ILE:HD11	3:C:83:LEU:HD22	1.65	0.77
2:F:67:ARG:CZ	2:F:67:ARG:HB3	2.14	0.77
5:J:4:DA:C2'	5:J:5:DG:H5''	2.14	0.76
5:I:-34:DA:H2''	5:I:-33:DC:H5'	1.67	0.76
2:B:70:VAL:O	2:B:73:THR:HG22	1.85	0.76
5:J:42:DG:H2''	5:J:43:DA:C8	2.21	0.76
5:I:-47:DC:H2''	5:I:-46:DA:C8	2.21	0.75
5:I:-51:DT:H1'	5:I:-50:DC:H5''	1.65	0.75
2:B:92:ARG:HB3	2:B:92:ARG:NH1	2.00	0.75
1:E:85:ASN:N	2:F:79:LYS:O	2.19	0.75
5:I:42:DG:C2'	5:I:43:DA:H5''	2.17	0.75
5:J:-26:DA:H2''	5:J:-25:DT:O4'	1.87	0.75
5:J:-26:DA:H2''	5:J:-25:DT:H5''	1.69	0.75
3:G:17:ARG:HH12	3:G:31:HIS:CD2	2.05	0.75
5:J:-15:DC:H2''	5:J:-14:DT:C5'	2.16	0.75
1:E:69:ARG:CB	1:E:69:ARG:HH11	1.98	0.74
1:A:63:ARG:HD2	5:J:18:DA:OP1	1.86	0.74
1:A:130:ARG:NH1	2:B:57:VAL:HG22	2.01	0.74
1:A:82:VAL:HG12	1:A:83:ASP:H	1.52	0.74
3:C:62:ILE:HD11	3:C:83:LEU:CD2	2.16	0.74
5:J:26:DT:H2''	5:J:27:DT:C5'	2.18	0.74
2:F:73:THR:HG23	2:F:85:ASP:OD2	1.87	0.74
5:I:24:DA:H1'	5:I:25:DA:H5'	1.68	0.74
2:F:67:ARG:HH11	2:F:67:ARG:HB3	1.51	0.74
5:J:36:DT:H1'	5:J:37:DA:H5'	1.70	0.74
5:J:20:DT:H2''	5:J:21:DG:O5'	1.88	0.74

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:J:-32:DA:H2''	5:J:-31:DG:OP2	1.88	0.74
5:I:-50:DC:C2'	5:I:-49:DT:H5''	2.18	0.73
5:J:27:DT:H2''	5:J:28:DC:C5	2.23	0.73
1:A:97:ALA:HB2	2:B:97:LEU:HD12	1.69	0.73
5:J:-52:DT:H2''	5:J:-51:DT:C5'	2.07	0.73
5:J:30:DT:H2''	5:J:31:DC:H5'	1.68	0.73
3:G:29:ARG:HG2	3:G:33:LEU:HD11	1.69	0.73
3:G:63:LEU:HG	4:H:62:MSE:HE2	1.70	0.73
5:J:-59:DA:C2'	5:J:-58:DC:H5''	2.17	0.72
3:C:24:GLN:HG3	4:D:43:LYS:HD2	1.70	0.72
5:I:-3:DG:C2'	5:I:-2:DG:H5''	2.19	0.72
3:G:59:THR:HG23	4:H:62:MSE:HE3	1.71	0.72
4:D:84:ASN:O	4:D:86:ARG:HG3	1.89	0.72
4:D:95:GLN:HG3	4:D:111:VAL:HG23	1.71	0.72
5:I:30:DT:H1'	5:I:31:DC:H5''	1.71	0.72
5:I:-54:DA:H2''	5:I:-53:DT:C5'	2.19	0.72
5:J:33:DG:H2''	5:J:34:DT:H71	1.71	0.72
1:A:62:ILE:HD11	2:B:37:LEU:HD11	1.72	0.72
5:J:-13:DT:H1'	5:J:-12:DC:H5''	1.72	0.72
1:A:129:ALA:C	1:A:131:ARG:H	1.94	0.71
3:C:16:THR:N	3:C:19:SER:HG	1.87	0.71
5:J:49:DA:H1'	5:J:50:DG:H5'	1.70	0.71
1:A:112:LEU:HD23	1:E:128:LEU:HD21	1.72	0.71
5:J:30:DT:H2''	5:J:31:DC:H5''	1.71	0.71
3:C:76:THR:HG23	5:J:58:DG:OP2	1.91	0.71
5:J:-15:DC:H2''	5:J:-14:DT:H5''	1.73	0.71
2:F:38:ALA:O	2:F:43:VAL:HB	1.91	0.71
2:B:93:GLN:HB2	2:B:95:ARG:CD	2.19	0.71
2:F:64:ASN:HA	2:F:67:ARG:HH22	1.54	0.71
3:G:114:VAL:HG13	3:G:114:VAL:O	1.90	0.71
5:J:-23:DC:H2''	5:J:-22:DT:C5'	2.21	0.71
1:E:73:GLU:OE1	2:F:25:ASN:HB2	1.91	0.70
5:J:29:DT:C2'	5:J:30:DT:H5''	2.17	0.70
1:E:61:LEU:CD1	2:F:37:LEU:HD23	2.19	0.70
1:A:87:GLN:NE2	2:B:83:ALA:H	1.89	0.70
1:A:104:HIS:O	1:A:108:ASP:HB2	1.92	0.70
2:F:59:LYS:O	2:F:63:GLU:HB2	1.91	0.70
4:H:84:ASN:O	4:H:86:ARG:N	2.21	0.70
1:A:128:LEU:HD11	1:E:111:LEU:HB3	1.74	0.70
3:G:17:ARG:NH1	3:G:31:HIS:HD2	1.87	0.70
5:I:28:DC:C2'	5:I:29:DT:H5''	2.20	0.70

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:63:ARG:HD2	5:I:17:DT:H4'	1.73	0.69
5:J:24:DA:C2'	5:J:25:DA:H5'	2.23	0.69
5:J:41:DT:C2'	5:J:42:DG:H5''	2.22	0.69
5:J:-53:DT:H2''	5:J:-52:DT:C5'	2.22	0.69
2:F:76:ALA:CB	4:H:84:ASN:HD21	2.06	0.69
3:C:59:THR:HG22	4:D:62:MSE:CE	2.23	0.69
5:I:12:DG:H2''	5:I:13:DA:OP2	1.92	0.69
5:I:-9:DT:C2'	5:I:-8:DG:H5'	2.17	0.69
2:F:76:ALA:CB	4:H:84:ASN:ND2	2.56	0.69
2:F:78:ARG:HD3	5:I:28:DC:H5'	1.75	0.69
2:F:76:ALA:HB1	4:H:84:ASN:HD21	1.57	0.68
4:D:35:GLU:CA	5:J:49:DA:H5''	2.24	0.68
5:I:-33:DC:H2''	5:I:-32:DA:C8	2.27	0.68
5:I:-37:DT:H2''	5:I:-36:DA:H5''	1.73	0.68
5:I:-43:DT:H2''	5:I:-42:DC:C5	2.29	0.68
5:J:-1:DT:C2'	5:J:0:DA:H5''	2.23	0.68
2:F:26:ILE:HG23	2:F:27:GLN:HE21	1.58	0.68
5:J:35:DC:H1'	5:J:36:DT:H5''	1.76	0.68
1:E:70:LEU:HD13	2:F:25:ASN:O	1.94	0.68
5:I:-20:DA:C2'	5:I:-19:DG:H5'	2.24	0.68
5:I:19:DC:H2''	5:I:20:DT:H5''	1.75	0.68
1:E:67:PHE:CE2	1:E:95:GLN:HG3	2.29	0.67
4:H:49:HIS:HD2	4:H:52:THR:OG1	1.77	0.67
5:I:-12:DC:H2''	5:I:-11:DT:H5''	1.76	0.67
5:J:-41:DA:H2''	5:J:-40:DT:H5''	1.75	0.67
3:C:69:ALA:HA	3:C:72:ASP:CB	2.23	0.67
5:I:5:DG:H2''	5:I:6:DC:C5	2.29	0.67
3:G:29:ARG:HG2	3:G:33:LEU:CD1	2.24	0.67
5:J:-6:DG:H2''	5:J:-5:DC:C6	2.30	0.67
5:I:16:DT:H2''	5:I:17:DT:H71	1.76	0.67
5:J:2:DC:H2''	5:J:3:DC:OP2	1.94	0.67
1:E:110:TYR:HA	1:E:113:THR:HG23	1.77	0.67
1:E:114:LEU:HD23	1:E:118:ARG:O	1.94	0.67
5:I:4:DA:H2''	5:I:5:DG:H5''	1.75	0.67
2:F:62:LEU:O	2:F:66:ILE:HG12	1.95	0.67
3:G:87:ILE:HD12	3:G:102:ILE:CD1	2.21	0.67
5:J:33:DG:H2''	5:J:34:DT:C7	2.25	0.67
5:J:56:DC:H2''	5:J:57:DC:C5	2.29	0.66
5:J:-17:DA:H2''	5:J:-16:DA:O5'	1.96	0.66
5:J:24:DA:H1'	5:J:25:DA:H5'	1.75	0.66
2:B:70:VAL:HA	2:B:73:THR:HG22	1.77	0.66

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:61:LEU:HD22	2:B:36:ARG:HB3	1.77	0.66
2:F:32:PRO:O	2:F:36:ARG:HD3	1.96	0.66
2:B:45:ARG:HE	5:J:7:DA:H4'	1.60	0.66
1:A:110:TYR:HD1	1:A:121:LEU:HG	1.60	0.66
2:B:78:ARG:CZ	2:B:82:THR:HG23	2.26	0.66
4:D:41:VAL:HG11	4:D:62:MSE:HG3	1.78	0.66
1:A:107:GLU:HB3	2:B:41:GLY:O	1.95	0.66
5:J:44:DA:H2''	5:J:45:DA:C5'	2.20	0.66
5:I:5:DG:H2''	5:I:6:DC:C6	2.30	0.65
1:A:63:ARG:HH22	2:B:36:ARG:HH12	1.43	0.65
3:C:110:ASN:H	1:E:55:GLN:NE2	1.95	0.65
1:E:120:THR:HA	2:F:45:ARG:O	1.96	0.65
1:A:112:LEU:HD21	1:E:132:ILE:CD1	2.25	0.65
5:I:56:DG:H2''	5:I:55:DG:OP2	1.97	0.65
1:A:121:LEU:O	2:B:47:SER:HB3	1.96	0.65
5:J:53:DT:H2''	5:J:52:DT:H5''	1.77	0.65
5:I:34:DA:H2''	5:I:33:DC:C5'	2.26	0.65
3:C:30:VAL:HG13	4:D:70:PHE:HE1	1.62	0.65
1:A:51:ILE:O	1:A:51:ILE:HG22	1.97	0.65
1:A:61:LEU:HD12	2:B:37:LEU:HD23	1.79	0.64
3:C:38:ASN:ND2	3:G:40:SER:HA	2.12	0.64
5:J:54:DT:H2''	5:J:55:DC:C5'	2.26	0.64
5:I:29:DA:H2''	5:I:28:DG:C8	2.32	0.64
5:J:55:DC:C2'	5:J:56:DC:H5''	2.27	0.64
1:A:48:LEU:CD1	1:A:52:ARG:HH21	2.11	0.64
3:G:111:ILE:HG22	3:G:112:GLN:H	1.61	0.64
3:G:54:VAL:HG13	4:H:110:ALA:HB1	1.78	0.64
5:I:7:DA:H2''	5:I:8:DC:OP2	1.98	0.64
5:J:35:DG:H1'	5:J:34:DA:H5'	1.78	0.64
5:J:20:DT:OP2	5:J:20:DT:H3'	1.98	0.64
3:C:69:ALA:CA	3:C:72:ASP:HB2	2.24	0.64
5:J:20:DA:H2''	5:J:19:DG:OP2	1.98	0.64
5:J:47:DC:C2'	5:J:46:DA:H5''	2.27	0.64
1:A:132:ILE:O	1:A:132:ILE:HG22	1.96	0.64
1:A:48:LEU:HD13	1:A:52:ARG:HH21	1.63	0.64
2:B:71:THR:O	2:B:74:GLU:HG2	1.97	0.64
4:H:44:VAL:O	4:H:47:GLN:HB2	1.98	0.64
5:J:47:DC:H2''	5:J:46:DA:C5'	2.28	0.64
1:A:73:GLU:HA	1:A:76:VAL:HG23	1.80	0.64
3:G:106:GLY:O	3:G:107:VAL:HG13	1.98	0.64
5:I:53:DT:C1'	5:I:52:DT:H5''	2.28	0.64

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:J:-27:DA:H4'	5:J:-26:DA:OP1	1.98	0.64
5:J:16:DT:H2''	5:J:17:DT:H72	1.79	0.63
1:A:67:PHE:CE2	1:A:95:GLN:HG3	2.33	0.63
3:C:88:ARG:HB3	3:C:108:LEU:HD11	1.81	0.63
1:E:109:ALA:O	1:E:112:LEU:HB2	1.99	0.63
5:J:-26:DA:C2'	5:J:-25:DT:H5''	2.28	0.63
3:C:83:LEU:HD13	4:D:61:ILE:CG2	2.29	0.63
4:H:75:GLY:O	4:H:78:SER:N	2.32	0.63
1:A:48:LEU:HD13	1:A:52:ARG:NH2	2.13	0.63
4:D:38:SER:N	4:D:63:ASN:HD21	1.97	0.63
5:J:-23:DC:H1'	5:J:-22:DT:H5''	1.81	0.63
5:J:21:DG:C2'	5:J:22:DA:H5'	2.20	0.63
5:J:28:DC:C2'	5:J:29:DT:H5'	2.21	0.63
2:B:31:LYS:H	2:B:32:PRO:HD2	1.64	0.63
5:I:26:DT:H1'	5:I:27:DT:H5''	1.80	0.63
5:I:23:DG:H2''	5:I:24:DA:C8	2.33	0.62
5:J:23:DG:H1'	5:J:24:DA:H5'	1.81	0.62
5:J:-9:DT:H2''	5:J:-8:DG:C5'	2.29	0.62
2:B:48:GLY:O	2:B:50:ILE:N	2.33	0.62
2:B:72:TYR:OH	4:D:76:GLU:OE1	2.16	0.62
2:F:50:ILE:HG22	2:F:50:ILE:O	1.97	0.62
5:I:32:DT:H2''	5:I:33:DG:C8	2.35	0.62
5:I:-5:DC:H1'	5:I:-4:DT:C5	2.34	0.62
1:A:87:GLN:HE21	2:B:82:THR:HA	1.64	0.62
3:C:35:ARG:HG2	3:C:43:VAL:HG21	1.82	0.62
5:I:19:DC:C2'	5:I:20:DT:H5''	2.29	0.62
5:I:22:DA:H1'	5:I:23:DG:O4'	1.99	0.62
3:C:34:LEU:HD23	3:C:34:LEU:O	1.99	0.62
4:D:68:ASP:OD2	4:D:72:ARG:NH2	2.33	0.62
5:I:59:DT:H2''	5:I:60:DT:OP2	1.99	0.62
3:C:66:ALA:N	3:C:86:ALA:HB2	2.15	0.62
3:C:59:THR:HG22	4:D:62:MSE:HE1	1.80	0.62
4:D:48:VAL:O	4:D:49:HIS:ND1	2.31	0.62
1:E:112:LEU:HD13	1:E:128:LEU:HD23	1.82	0.61
5:J:-15:DC:C2'	5:J:-14:DT:H5''	2.30	0.61
4:D:71:GLU:O	4:D:75:GLY:N	2.32	0.61
1:A:69:ARG:HD2	2:B:25:ASN:OD1	2.00	0.61
1:E:99:GLU:O	1:E:103:VAL:HG23	2.00	0.61
2:F:93:GLN:HB3	2:F:95:ARG:HG3	1.82	0.61
5:I:-3:DG:H2''	5:I:-2:DG:C5'	2.30	0.61
5:J:-37:DT:H2''	5:J:-36:DA:H5'	1.82	0.61

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:64:ASN:HA	2:B:67:ARG:NH1	2.14	0.61
4:D:54:ILE:HD13	4:D:59:MSE:HE2	1.82	0.61
5:I:46:DT:H2''	5:I:47:DG:OP2	2.00	0.61
1:A:67:PHE:CE1	2:B:62:LEU:HD11	2.36	0.61
4:D:94:ILE:HG22	4:D:94:ILE:O	2.00	0.61
3:G:66:ALA:HA	3:G:86:ALA:HB2	1.82	0.61
5:J:46:DT:H2''	5:J:47:DG:C8	2.36	0.61
3:C:31:HIS:HD2	3:C:35:ARG:HH11	1.48	0.61
2:F:86:VAL:O	2:F:89:ALA:N	2.32	0.61
1:A:82:VAL:CG1	1:A:83:ASP:H	2.13	0.61
3:G:42:ARG:NH1	4:H:88:THR:HB	2.16	0.61
3:C:85:LEU:O	3:C:89:ASN:HB2	2.01	0.61
4:D:76:GLU:HG2	4:D:101:LEU:HD21	1.81	0.61
1:A:67:PHE:CD2	1:A:95:GLN:HG3	2.36	0.60
2:B:62:LEU:O	2:B:66:ILE:HG13	2.00	0.60
3:G:41:GLU:OE2	3:G:42:ARG:HG3	2.01	0.60
5:I:-12:DC:H1'	5:I:-11:DT:H5''	1.84	0.60
5:I:-37:DT:C2'	5:I:-36:DA:H5''	2.31	0.60
1:A:110:TYR:CE1	2:B:43:VAL:HG13	2.37	0.60
1:A:82:VAL:HG12	1:A:83:ASP:O	2.01	0.60
4:D:49:HIS:N	4:D:50:PRO:HD3	2.14	0.60
2:F:31:LYS:HA	2:F:51:TYR:CD1	2.35	0.60
4:H:68:ASP:O	4:H:72:ARG:HG3	2.02	0.60
5:I:41:DT:OP1	5:I:41:DT:H4'	2.00	0.60
5:I:59:DT:H2''	5:I:60:DT:H72	1.83	0.60
1:A:82:VAL:CG1	1:A:83:ASP:N	2.64	0.60
4:D:93:GLU:C	4:D:95:GLN:H	2.05	0.60
5:I:-5:DC:H1'	5:I:-4:DT:C6	2.36	0.60
1:A:120:THR:OG1	2:B:45:ARG:HD3	2.02	0.60
5:J:25:DA:H4'	5:J:26:DT:OP1	2.00	0.60
5:J:35:DC:C2'	5:J:36:DT:H5''	2.32	0.60
5:J:46:DT:H2''	5:J:47:DG:N7	2.16	0.60
2:B:57:VAL:HG12	2:B:58:LEU:N	2.16	0.60
5:I:-1:DT:H2''	5:I:0:DA:OP2	2.02	0.60
5:I:57:DC:H2''	5:I:58:DG:C8	2.37	0.60
1:E:94:LEU:HD11	2:F:66:ILE:HD11	1.84	0.59
5:I:1:DA:H2''	5:I:2:DC:C5'	2.32	0.59
5:I:12:DG:H1'	5:I:13:DA:C5'	2.30	0.59
5:J:24:DA:H1'	5:J:25:DA:C5'	2.32	0.59
3:C:97:LEU:HD22	3:C:100:VAL:HG21	1.84	0.59
2:F:54:THR:O	2:F:56:GLY:N	2.36	0.59

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:76:ALA:HB2	4:H:84:ASN:ND2	2.18	0.59
5:I:45:DA:H2''	5:I:46:DT:OP2	2.02	0.59
5:J:31:DC:H2''	5:J:32:DT:H5'	1.85	0.59
3:C:102:ILE:HG23	4:D:61:ILE:CG1	2.31	0.59
2:F:82:THR:HG23	2:F:85:ASP:OD1	2.02	0.59
5:J:-25:DT:H2'	5:J:-24:DT:H71	1.83	0.59
1:E:72:ARG:NH1	5:J:-23:DC:OP1	2.36	0.59
5:I:-48:DT:H2''	5:I:-47:DC:H6	1.67	0.59
1:A:52:ARG:HG3	3:G:111:ILE:HD11	1.84	0.59
3:C:32:ARG:O	3:C:34:LEU:N	2.36	0.59
1:E:85:ASN:O	2:F:80:THR:HA	2.01	0.59
5:I:36:DT:H2''	5:I:37:DA:OP2	2.03	0.59
3:C:32:ARG:C	3:C:34:LEU:H	2.05	0.59
1:E:84:PHE:O	1:E:85:ASN:ND2	2.35	0.59
5:J:48:DA:H2''	5:J:49:DA:C8	2.37	0.59
2:B:72:TYR:CE1	4:D:80:LEU:HD13	2.38	0.59
3:G:67:GLY:O	3:G:70:ALA:HB3	2.02	0.59
5:J:55:DC:H2''	5:J:56:DC:C5'	2.33	0.59
3:G:59:THR:HG23	4:H:62:MSE:CE	2.33	0.59
3:C:111:ILE:CD1	1:E:52:ARG:HH11	2.16	0.58
3:C:110:ASN:H	1:E:55:GLN:HE22	1.50	0.58
3:G:81:ARG:HD3	3:G:81:ARG:O	2.02	0.58
2:B:47:SER:HA	5:J:7:DA:OP1	2.03	0.58
2:F:35:ARG:HG3	2:F:46:ILE:CD1	2.30	0.58
5:I:-12:DC:C2'	5:I:-11:DT:H5''	2.33	0.58
5:I:-22:DT:C3'	5:I:-21:DC:H5''	2.34	0.58
2:B:26:ILE:C	2:B:28:GLY:H	2.06	0.58
3:C:61:GLU:O	3:C:64:GLU:HB3	2.03	0.58
5:J:-15:DC:H1'	5:J:-14:DT:H5''	1.84	0.58
2:B:99:GLY:O	2:B:100:PHE:CD1	2.57	0.58
3:G:27:VAL:HG13	3:G:48:PRO:O	2.04	0.58
5:I:24:DA:H1'	5:I:25:DA:C5'	2.33	0.58
3:G:104:GLN:HG3	4:H:57:LYS:HD3	1.85	0.58
5:I:-11:DT:H2'	5:I:-10:DT:C5	2.39	0.58
2:F:24:ASP:OD1	2:F:26:ILE:HG22	2.04	0.58
5:I:-36:DA:H2''	5:I:-35:DG:C8	2.38	0.58
5:J:-39:DG:H2''	5:J:-38:DC:H5''	1.85	0.58
5:J:-55:DG:H2''	5:J:-54:DA:C5'	2.33	0.58
1:E:128:LEU:O	1:E:132:ILE:HG13	2.04	0.57
1:E:70:LEU:O	1:E:74:ILE:HG13	2.03	0.57
3:G:88:ARG:HA	3:G:94:ASN:OD1	2.03	0.57

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:I:35:DG:N2	5:J:36:DT:O2	2.37	0.57
3:C:92:GLU:OE2	4:D:105:GLU:HB2	2.04	0.57
4:H:114:GLY:C	4:H:116:LYS:H	2.07	0.57
3:C:55:LEU:O	3:C:59:THR:OG1	2.22	0.57
1:E:102:LEU:O	1:E:105:LEU:HB3	2.03	0.57
1:E:63:ARG:CD	5:I:17:DT:H4'	2.33	0.57
5:J:5:DG:H2''	5:J:6:DC:C5	2.40	0.57
5:J:50:DG:H2''	5:J:51:DA:O5'	2.04	0.57
3:C:23:LEU:HD22	3:C:56:GLU:OE1	2.04	0.57
4:H:81:ALA:O	4:H:86:ARG:O	2.21	0.57
5:J:28:DC:H2''	5:J:29:DT:C5'	2.25	0.57
5:J:44:DA:C2'	5:J:45:DA:H5'	2.21	0.57
2:B:92:ARG:HB3	2:B:92:ARG:CZ	2.34	0.57
3:C:31:HIS:CD2	3:C:35:ARG:NH1	2.71	0.57
3:C:90:ASP:OD2	3:C:93:LEU:N	2.38	0.57
4:D:97:ALA:O	4:D:101:LEU:HD23	2.04	0.57
1:E:87:GLN:OE1	2:F:82:THR:HB	2.05	0.57
5:I:37:DA:H2''	5:I:38:DG:N7	2.20	0.57
4:D:48:VAL:O	4:D:49:HIS:HB2	2.05	0.57
5:J:47:DG:H1'	5:J:48:DA:H5''	1.86	0.57
5:J:14:DA:H1'	5:J:15:DG:N7	2.20	0.57
5:J:-1:DT:H2''	5:J:0:DA:C5'	2.27	0.57
1:A:124:LYS:HG2	1:E:115:HIS:CE1	2.35	0.57
5:I:26:DT:H2''	5:I:27:DT:H5'	1.87	0.57
5:I:-53:DT:C2'	5:I:-52:DT:C5'	2.82	0.57
3:C:83:LEU:O	3:C:87:ILE:HG13	2.05	0.56
1:E:61:LEU:HB2	2:F:37:LEU:CD2	2.35	0.56
5:I:-28:DG:N2	5:J:29:DT:O2	2.37	0.56
5:I:-43:DT:H2''	5:I:-42:DC:C6	2.40	0.56
5:J:-24:DT:H2''	5:J:-23:DC:OP2	2.05	0.56
1:E:72:ARG:O	1:E:75:CYS:HB3	2.05	0.56
4:H:84:ASN:C	4:H:86:ARG:H	2.07	0.56
5:J:0:DA:H2''	5:J:1:DA:H8	1.69	0.56
3:C:20:ARG:HH11	3:C:20:ARG:CG	2.10	0.56
1:E:106:PHE:O	1:E:109:ALA:N	2.39	0.56
2:B:82:THR:O	2:B:85:ASP:HB2	2.06	0.56
3:C:23:LEU:HB3	3:C:56:GLU:OE1	2.05	0.56
4:D:118:VAL:O	4:D:121:TYR:HB3	2.05	0.56
3:G:31:HIS:O	3:G:34:LEU:HB2	2.05	0.56
5:I:44:DA:H2''	5:I:45:DA:H5'	1.88	0.56
1:A:122:PHE:C	2:B:50:ILE:HD11	2.26	0.56

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:102:ILE:HD12	4:D:61:ILE:CG2	2.35	0.56
5:I:-21:DC:H2''	5:I:-20:DA:C5'	2.31	0.56
5:I:-23:DC:H2''	5:I:-22:DT:H5'	1.86	0.56
5:J:-13:DT:H1'	5:J:-12:DC:C5'	2.36	0.56
5:J:35:DC:H2''	5:J:36:DT:H5''	1.86	0.56
5:I:55:DC:H2''	5:I:56:DC:C5'	2.32	0.56
3:C:16:THR:O	3:C:20:ARG:NH1	2.38	0.56
1:E:90:ALA:HB2	2:F:83:ALA:N	2.20	0.56
5:I:-23:DC:H2''	5:I:-22:DT:OP2	2.05	0.56
5:I:28:DC:C2'	5:I:29:DT:C5'	2.74	0.56
5:I:49:DA:H1'	5:I:50:DG:H5'	1.88	0.56
5:J:43:DA:H2''	5:J:44:DA:O5'	2.06	0.56
1:A:48:LEU:HD13	1:A:48:LEU:O	2.06	0.56
4:D:38:SER:H	4:D:63:ASN:HD21	1.52	0.56
2:F:67:ARG:O	2:F:70:VAL:HG12	2.06	0.56
3:G:111:ILE:CG2	3:G:112:GLN:N	2.65	0.56
5:I:-27:DA:C2'	5:I:-26:DA:H5''	2.29	0.56
3:C:32:ARG:C	3:C:34:LEU:N	2.59	0.56
4:D:36:SER:OG	4:D:63:ASN:ND2	2.38	0.56
4:D:66:VAL:CG1	4:D:67:ASN:N	2.69	0.56
3:G:36:LYS:C	3:G:38:ASN:H	2.09	0.56
3:G:57:TYR:O	3:G:61:GLU:N	2.39	0.56
5:I:-55:DG:H2''	5:I:-54:DA:O5'	2.05	0.56
5:J:-15:DC:H2''	5:J:-14:DT:H5'	1.87	0.56
5:J:-25:DT:C2'	5:J:-24:DT:H71	2.36	0.56
3:C:58:LEU:O	3:C:62:ILE:HG22	2.06	0.55
3:C:104:GLN:NE2	1:E:60:LEU:CD1	2.69	0.55
5:J:-55:DG:C2'	5:J:-54:DA:H5''	2.36	0.55
1:E:48:LEU:O	1:E:48:LEU:HD23	2.05	0.55
4:H:54:ILE:HG12	4:H:55:SER:N	2.20	0.55
5:J:1:DA:H2''	5:J:2:DC:C6	2.41	0.55
5:J:36:DT:H2''	5:J:37:DA:O5'	2.05	0.55
3:C:42:ARG:CD	5:J:39:DC:H5'	2.36	0.55
4:H:112:SER:O	4:H:116:LYS:HE3	2.05	0.55
5:J:-7:DT:H2''	5:J:-6:DG:C8	2.40	0.55
5:J:9:DA:H2''	5:J:10:DA:C5'	2.23	0.55
4:H:86:ARG:HG3	5:J:-34:DA:OP1	2.07	0.55
5:I:20:DT:C2'	5:I:21:DG:H5'	2.29	0.55
5:J:-2:DG:H2''	5:J:-1:DT:C5'	2.36	0.55
5:J:28:DC:H1'	5:J:29:DT:H5''	1.88	0.55
5:J:-9:DT:H2''	5:J:-8:DG:H5''	1.89	0.55

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:48:VAL:CG2	4:D:48:VAL:O	2.54	0.55
4:H:63:ASN:O	4:H:67:ASN:OD1	2.24	0.55
5:I:44:DA:H1'	5:I:45:DA:H5''	1.88	0.55
5:J:22:DA:H2''	5:J:23:DG:OP2	2.06	0.55
3:G:111:ILE:CG2	3:G:112:GLN:H	2.20	0.55
1:A:72:ARG:O	1:A:75:CYS:HB3	2.07	0.55
1:A:87:GLN:NE2	2:B:82:THR:HA	2.22	0.55
5:I:11:DA:H2''	5:I:12:DG:C8	2.40	0.55
3:G:24:GLN:OE1	4:H:43:LYS:HE2	2.07	0.55
5:I:-20:DA:H1'	5:I:-19:DG:H5'	1.88	0.55
5:I:-46:DA:C2	5:J:47:DG:N2	2.75	0.55
3:C:35:ARG:HG2	3:C:43:VAL:CG2	2.37	0.55
4:D:48:VAL:O	4:D:49:HIS:CB	2.55	0.55
1:A:47:TRP:C	1:A:49:LYS:H	2.11	0.54
3:C:50:TYR:CD2	4:D:91:SER:HB2	2.42	0.54
5:I:42:DG:H2''	5:I:43:DA:C5'	2.33	0.54
5:I:18:DA:H1'	5:I:19:DC:H5''	1.89	0.54
5:I:-22:DT:H2''	5:I:-21:DC:C5'	2.23	0.54
5:I:-6:DG:H2''	5:I:-5:DC:O5'	2.07	0.54
5:J:-53:DT:C2'	5:J:-52:DT:H5''	2.36	0.54
2:F:30:THR:HB	2:F:32:PRO:HD2	1.90	0.54
3:G:63:LEU:HD13	4:H:45:LEU:HD13	1.89	0.54
3:G:79:ILE:C	4:H:58:ALA:HB2	2.27	0.54
3:C:104:GLN:NE2	1:E:60:LEU:HD12	2.23	0.54
3:G:62:ILE:O	3:G:64:GLU:N	2.40	0.54
4:H:54:ILE:CD1	4:H:59:MSE:HG2	2.35	0.54
4:H:73:ILE:HD13	4:H:98:VAL:HG22	1.90	0.54
1:A:72:ARG:O	1:A:76:VAL:HG23	2.08	0.54
3:C:50:TYR:HD2	4:D:91:SER:HB2	1.72	0.54
3:C:59:THR:HG22	4:D:62:MSE:HE3	1.90	0.54
2:F:77:LYS:O	2:F:78:ARG:CB	2.56	0.54
5:I:-53:DT:C2'	5:I:-52:DT:H5''	2.37	0.54
1:E:120:THR:HG22	1:E:121:LEU:O	2.07	0.54
1:E:75:CYS:SG	1:E:86:TRP:HZ2	2.31	0.54
1:E:106:PHE:CD2	2:F:38:ALA:HA	2.43	0.54
1:A:86:TRP:O	1:A:87:GLN:C	2.46	0.54
2:B:35:ARG:O	2:B:38:ALA:N	2.41	0.54
1:E:97:ALA:HB2	2:F:97:LEU:HD22	1.90	0.54
5:I:4:DA:C2'	5:I:5:DG:H5''	2.37	0.54
5:J:24:DA:C1'	5:J:25:DA:H5'	2.37	0.54
3:C:43:VAL:HG12	3:C:44:GLY:O	2.06	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:65:LEU:HB2	3:C:86:ALA:CB	2.33	0.54
3:G:87:ILE:HD13	3:G:97:LEU:HD12	1.89	0.54
5:J:14:DA:H1'	5:J:15:DG:C8	2.43	0.54
4:D:41:VAL:HG13	4:D:62:MSE:HE3	1.90	0.54
3:G:42:ARG:O	4:H:88:THR:HA	2.08	0.54
3:G:50:TYR:OH	4:H:95:GLN:HG3	2.08	0.54
5:I:-11:DT:C2	5:J:12:DG:N2	2.76	0.54
5:I:31:DC:H2'	5:I:32:DT:H71	1.90	0.54
4:H:62:MSE:O	4:H:65:PHE:N	2.39	0.54
5:I:18:DA:H1'	5:I:19:DC:C5'	2.38	0.54
1:E:65:LEU:HD13	5:I:18:DA:OP2	2.07	0.53
3:C:26:PRO:HG3	4:D:40:TYR:CE2	2.43	0.53
3:G:77:ARG:NH1	5:J:-54:DA:H4'	2.23	0.53
3:G:42:ARG:HG2	5:I:39:DC:H5''	1.90	0.53
4:H:88:THR:HG22	5:J:-34:DA:OP1	2.08	0.53
5:I:51:DA:H2''	5:I:52:DA:OP2	2.07	0.53
2:B:91:LYS:O	2:B:91:LYS:HG2	2.09	0.53
4:H:111:VAL:HG12	4:H:112:SER:N	2.22	0.53
4:H:41:VAL:HG11	4:H:62:MSE:CB	2.36	0.53
4:H:62:MSE:O	4:H:65:PHE:HB3	2.08	0.53
5:J:30:DT:C2'	5:J:31:DC:H5''	2.39	0.53
1:A:119:VAL:HG12	1:A:119:VAL:O	2.07	0.53
1:E:67:PHE:CD2	1:E:95:GLN:HG3	2.43	0.53
2:F:31:LYS:N	2:F:32:PRO:HD2	2.24	0.53
1:A:113:THR:HG21	1:A:121:LEU:HA	1.90	0.53
3:C:51:LEU:O	3:C:55:LEU:HG	2.08	0.53
5:J:-13:DT:H2''	5:J:-12:DC:OP2	2.08	0.53
2:B:35:ARG:O	2:B:36:ARG:C	2.46	0.53
2:B:90:LEU:C	2:B:92:ARG:H	2.12	0.53
1:E:130:ARG:CD	2:F:57:VAL:HG21	2.38	0.53
5:I:-2:DG:H2''	5:I:-1:DT:C6	2.44	0.53
5:I:-47:DC:H2''	5:I:-46:DA:N7	2.24	0.53
5:J:32:DT:H2''	5:J:33:DG:O5'	2.08	0.53
3:C:100:VAL:HG12	3:C:101:THR:N	2.23	0.53
2:F:60:VAL:O	2:F:64:ASN:OD1	2.26	0.53
3:G:87:ILE:HD13	3:G:97:LEU:CD1	2.39	0.53
3:C:39:TYR:HB3	4:D:78:SER:HB2	1.90	0.53
1:E:95:GLN:O	1:E:98:ALA:N	2.41	0.53
5:I:11:DA:H2'	5:I:11:DA:OP2	2.09	0.53
5:J:-36:DA:H2''	5:J:-35:DG:N7	2.24	0.53
1:A:129:ALA:C	1:A:131:ARG:N	2.62	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:54:LEU:HD11	2:B:36:ARG:HG2	1.91	0.52
5:I:8:DC:C2	5:I:9:DA:N7	2.78	0.52
4:D:37:TYR:H	4:D:37:TYR:HD2	1.56	0.52
4:D:84:ASN:N	4:D:84:ASN:HD22	2.06	0.52
3:G:83:LEU:HD11	4:H:58:ALA:HB1	1.91	0.52
2:B:32:PRO:HA	2:B:35:ARG:HB2	1.91	0.52
2:B:82:THR:O	2:B:85:ASP:N	2.40	0.52
1:E:123:PRO:HG2	2:F:49:LEU:HB2	1.91	0.52
2:F:32:PRO:HG3	5:J:-13:DT:H2'	1.91	0.52
3:G:73:ASN:ND2	3:G:73:ASN:O	2.42	0.52
5:I:-3:DG:H1'	5:I:-2:DG:H5''	1.92	0.52
5:J:-36:DA:H2''	5:J:-35:DG:C8	2.45	0.52
5:I:33:DG:N2	5:I:34:DT:O2	2.42	0.52
1:A:120:THR:HA	2:B:45:ARG:O	2.09	0.52
2:B:92:ARG:HB3	2:B:92:ARG:HH11	1.74	0.52
4:D:70:PHE:C	4:D:70:PHE:CD2	2.83	0.52
2:F:54:THR:C	2:F:56:GLY:H	2.13	0.52
5:I:43:DA:H2''	5:I:44:DA:C8	2.45	0.52
5:J:25:DA:N3	5:J:26:DT:C2	2.78	0.52
2:B:70:VAL:CA	2:B:73:THR:HG22	2.39	0.52
3:C:104:GLN:HE22	1:E:60:LEU:HD12	1.74	0.52
2:F:46:ILE:HG22	2:F:47:SER:N	2.24	0.52
2:F:73:THR:HG21	2:F:81:VAL:HA	1.91	0.52
5:J:-8:DG:H2''	5:J:-7:DT:C6	2.45	0.52
3:C:18:SER:O	3:C:23:LEU:N	2.43	0.52
2:F:97:LEU:HD12	2:F:98:TYR:H	1.74	0.52
2:F:52:GLU:O	2:F:56:GLY:N	2.43	0.52
5:J:19:DC:H1'	5:J:20:DT:C6	2.45	0.52
4:D:62:MSE:O	4:D:65:PHE:HB3	2.10	0.52
1:E:106:PHE:O	1:E:110:TYR:N	2.42	0.52
5:J:-30:DA:H2''	5:J:-29:DA:O5'	2.10	0.52
1:E:131:ARG:HG3	1:E:131:ARG:HH11	1.75	0.51
2:F:68:ASP:HA	4:H:100:LEU:HD21	1.92	0.51
3:G:114:VAL:CG1	3:G:114:VAL:O	2.58	0.51
5:I:-31:DG:H2''	5:I:-30:DA:C8	2.45	0.51
5:J:35:DC:C1'	5:J:36:DT:H5''	2.41	0.51
2:F:73:THR:CG2	2:F:81:VAL:HA	2.40	0.51
5:J:5:DG:H2''	5:J:6:DC:C6	2.45	0.51
2:B:78:ARG:CB	2:B:78:ARG:HH11	2.23	0.51
3:C:100:VAL:HG13	2:F:98:TYR:CE1	2.46	0.51
5:I:-10:DT:H2''	5:I:-9:DT:OP2	2.09	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:I:14:DA:H1'	5:I:15:DG:C8	2.46	0.51
2:F:30:THR:HA	2:F:55:ARG:NH2	2.19	0.51
3:G:62:ILE:C	3:G:64:GLU:N	2.64	0.51
5:I:8:DC:N4	5:I:9:DA:H62	2.07	0.51
5:J:25:DA:H2''	5:J:26:DT:H72	1.93	0.51
2:F:77:LYS:O	2:F:78:ARG:HB3	2.10	0.51
3:G:15:LYS:HB2	5:J:-42:DC:OP1	2.11	0.51
5:J:-43:DT:H2''	5:J:-42:DC:H5'	1.92	0.51
5:J:-53:DT:H2''	5:J:-52:DT:H5'	1.92	0.51
4:D:102:LEU:O	4:D:107:ALA:HB2	2.10	0.51
2:F:69:ALA:HB2	2:F:89:ALA:CB	2.41	0.51
2:F:71:THR:HG22	4:H:96:THR:HG23	1.92	0.51
5:J:23:DG:C1'	5:J:24:DA:H5'	2.40	0.51
2:B:73:THR:HG21	2:B:81:VAL:HG22	1.93	0.51
3:C:58:LEU:O	3:C:61:GLU:HB3	2.10	0.51
4:D:90:THR:OG1	4:D:92:ARG:HB3	2.11	0.51
2:F:86:VAL:O	2:F:89:ALA:HB3	2.11	0.51
3:G:43:VAL:O	5:I:38:DG:H3'	2.10	0.51
3:G:80:PRO:N	4:H:58:ALA:HB2	2.26	0.51
3:G:66:ALA:CA	3:G:86:ALA:HB2	2.41	0.51
5:I:-30:DA:H2''	5:I:-29:DA:C5'	2.24	0.51
2:B:89:ALA:O	2:B:93:GLN:HG2	2.11	0.51
4:H:35:GLU:HB3	5:I:49:DA:H5''	1.93	0.51
5:I:48:DA:H2''	5:I:49:DA:OP2	2.11	0.51
5:J:-38:DC:H2''	5:J:-37:DT:C6	2.46	0.51
1:A:110:TYR:O	1:A:114:LEU:HG	2.11	0.51
5:J:41:DT:H2''	5:J:42:DG:C5'	2.37	0.51
1:A:112:LEU:CD2	1:E:128:LEU:HD21	2.40	0.51
1:E:63:ARG:HH11	5:I:17:DT:H5''	1.75	0.51
5:I:-29:DA:H2''	5:I:-28:DG:H8	1.74	0.51
5:I:-37:DT:H2''	5:I:-36:DA:O4'	2.11	0.51
5:I:39:DC:H1'	5:I:40:DA:H5'	1.93	0.51
4:D:78:SER:O	4:D:82:HIS:HB2	2.12	0.50
3:G:89:ASN:ND2	3:G:108:LEU:HD21	2.27	0.50
5:I:0:DA:H1'	5:I:1:DA:H5''	1.93	0.50
1:A:128:LEU:CD1	1:E:111:LEU:HD13	2.40	0.50
4:D:98:VAL:HG13	4:D:102:LEU:HD23	1.94	0.50
1:E:121:LEU:O	1:E:122:PHE:CD1	2.64	0.50
5:I:-54:DA:H2'	5:I:-53:DT:C7	2.41	0.50
5:J:-9:DT:C2'	5:J:-8:DG:H5''	2.41	0.50
1:A:113:THR:OG1	1:A:114:LEU:N	2.44	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:63:ASN:O	4:D:66:VAL:HG12	2.11	0.50
1:E:61:LEU:HD12	2:F:37:LEU:CD2	2.28	0.50
5:J:-26:DA:C3'	5:J:-25:DT:H5''	2.42	0.50
5:I:-32:DA:N6	5:J:31:DC:N4	2.59	0.50
5:J:-39:DG:C2'	5:J:-38:DC:H5''	2.41	0.50
2:F:44:LYS:HG2	2:F:45:ARG:N	2.25	0.50
2:F:92:ARG:NH2	4:H:101:LEU:HD23	2.09	0.50
5:I:21:DG:H2''	5:I:22:DA:OP2	2.10	0.50
5:I:31:DC:H2''	5:I:32:DT:C5'	2.38	0.50
1:A:122:PHE:C	1:A:124:LYS:H	2.14	0.50
2:B:79:LYS:H	5:J:28:DC:P	2.34	0.50
3:C:24:GLN:CG	4:D:43:LYS:HD2	2.39	0.50
5:J:34:DT:H2''	5:J:35:DC:C6	2.46	0.50
3:C:42:ARG:HD2	5:J:38:DG:H4'	1.93	0.50
4:D:37:TYR:N	4:D:37:TYR:CD2	2.79	0.50
4:D:46:LYS:HE3	4:D:50:PRO:O	2.12	0.50
2:F:70:VAL:HG13	2:F:71:THR:N	2.26	0.50
3:G:39:TYR:HB3	4:H:78:SER:HB2	1.93	0.50
3:G:17:ARG:HG2	4:H:121:TYR:HE1	1.77	0.50
4:D:84:ASN:N	4:D:84:ASN:ND2	2.60	0.50
4:D:95:GLN:HG3	4:D:111:VAL:CG2	2.41	0.50
3:G:68:ASN:O	3:G:71:ARG:N	2.44	0.50
3:G:83:LEU:HD12	3:G:83:LEU:H	1.77	0.50
4:H:54:ILE:HG12	4:H:55:SER:H	1.76	0.50
3:G:37:GLY:HA3	3:G:39:TYR:HE2	1.77	0.50
5:I:-37:DT:C3'	5:I:-36:DA:H5''	2.42	0.50
5:I:-50:DC:H2''	5:I:-49:DT:H5'	1.92	0.50
5:I:49:DA:H2''	5:I:50:DG:OP2	2.12	0.50
3:G:46:GLY:O	3:G:49:VAL:HG12	2.11	0.50
2:B:47:SER:OG	2:B:48:GLY:N	2.44	0.49
2:F:54:THR:C	2:F:56:GLY:N	2.63	0.49
5:I:56:DC:H2''	5:I:57:DC:C5	2.46	0.49
3:G:17:ARG:NH2	5:J:-43:DT:OP2	2.44	0.49
2:B:96:THR:HG22	2:B:96:THR:O	2.12	0.49
3:C:58:LEU:HD11	4:D:102:LEU:HD11	1.94	0.49
1:E:98:ALA:HA	2:F:61:PHE:CE2	2.47	0.49
5:I:28:DC:H2'	5:I:29:DT:H71	1.92	0.49
5:I:35:DC:H2''	5:I:36:DT:O5'	2.12	0.49
5:J:-43:DT:H1'	5:J:-42:DC:H5''	1.92	0.49
3:C:26:PRO:HB2	3:C:29:ARG:HB3	1.95	0.49
1:E:113:THR:O	1:E:118:ARG:HB2	2.12	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:61:LEU:HB2	2:F:37:LEU:HD21	1.94	0.49
5:I:23:DG:C2'	5:I:24:DA:C8	2.95	0.49
5:J:20:DT:H3'	5:J:20:DT:P	2.53	0.49
1:A:67:PHE:HE1	2:B:58:LEU:HD21	1.77	0.49
1:A:87:GLN:HE21	2:B:82:THR:CA	2.26	0.49
2:F:49:LEU:C	2:F:51:TYR:H	2.15	0.49
3:C:58:LEU:HD12	4:D:69:ILE:HG21	1.94	0.49
4:D:111:VAL:O	4:D:115:THR:HB	2.13	0.49
3:G:88:ARG:HD3	3:G:94:ASN:OD1	2.12	0.49
3:G:78:ILE:HB	4:H:54:ILE:HA	1.94	0.49
1:A:113:THR:C	1:A:115:HIS:H	2.16	0.49
2:B:31:LYS:HG3	2:B:51:TYR:CE1	2.47	0.49
3:C:25:PHE:CG	3:C:56:GLU:HG3	2.47	0.49
3:C:42:ARG:O	4:D:88:THR:HA	2.12	0.49
5:J:17:DT:H2''	5:J:18:DA:H5'	1.94	0.49
1:E:61:LEU:HD13	2:F:36:ARG:C	2.33	0.49
2:F:90:LEU:O	2:F:93:GLN:HB2	2.13	0.49
5:J:-39:DG:H2''	5:J:-38:DC:C5'	2.43	0.49
1:E:62:ILE:HD11	2:F:37:LEU:HD11	1.95	0.49
5:I:-20:DA:H1'	5:I:-19:DG:C5'	2.43	0.49
5:J:11:DA:H1'	5:J:12:DG:C5'	2.37	0.49
5:J:-25:DT:H2'	5:J:-24:DT:C7	2.43	0.49
1:E:74:ILE:HG23	1:E:77:LYS:NZ	2.28	0.49
3:C:99:ARG:HD3	2:F:94:GLY:O	2.13	0.49
2:B:67:ARG:NH1	2:B:67:ARG:CB	2.70	0.48
1:A:85:ASN:N	2:B:79:LYS:O	2.43	0.48
1:E:68:SER:O	1:E:72:ARG:HG3	2.13	0.48
2:F:60:VAL:HG22	2:F:60:VAL:O	2.13	0.48
5:I:11:DA:N6	5:J:-12:DC:N4	2.60	0.48
2:B:45:ARG:HD2	5:I:-4:DT:H4'	1.95	0.48
5:J:55:DC:H1'	5:J:56:DC:H5''	1.95	0.48
1:A:85:ASN:O	2:B:80:THR:HA	2.12	0.48
3:C:31:HIS:CD2	3:C:35:ARG:HD3	2.49	0.48
1:E:111:LEU:O	1:E:115:HIS:HB2	2.13	0.48
1:E:67:PHE:HE1	2:F:62:LEU:CD1	2.17	0.48
4:H:118:VAL:HG23	4:H:119:THR:N	2.28	0.48
5:I:35:DC:H2'	5:I:36:DT:C5	2.48	0.48
5:I:-39:DG:H4'	5:I:-39:DG:OP1	2.13	0.48
5:J:-15:DC:C1'	5:J:-14:DT:H5''	2.43	0.48
1:A:65:LEU:HA	1:A:68:SER:HB3	1.94	0.48
3:C:74:LYS:O	3:C:75:LYS:HG2	2.12	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:G:50:TYR:O	3:G:54:VAL:HG23	2.13	0.48
4:H:42:TYR:O	4:H:45:LEU:HB3	2.12	0.48
1:A:113:THR:HG22	1:A:125:ASP:CG	2.34	0.48
5:I:-25:DT:H4'	5:I:-24:DT:OP1	2.13	0.48
5:J:-49:DT:H2''	5:J:-48:DT:OP2	2.14	0.48
1:A:132:ILE:HA	1:E:108:ASP:OD1	2.13	0.48
1:E:62:ILE:HG21	2:F:29:ILE:HD12	1.96	0.48
2:F:75:HIS:CD2	4:H:80:LEU:HD13	2.48	0.48
1:A:50:GLU:HG2	1:A:50:GLU:O	2.13	0.48
1:A:70:LEU:O	1:A:74:ILE:HG13	2.13	0.48
2:B:75:HIS:HE1	4:D:93:GLU:OE2	1.97	0.48
4:H:94:ILE:O	4:H:98:VAL:HG23	2.14	0.48
3:C:42:ARG:HD2	5:J:38:DG:O3'	2.14	0.48
1:A:63:ARG:HG3	5:J:17:DT:C3'	2.43	0.48
4:D:73:ILE:HD11	4:D:102:LEU:HD21	1.95	0.48
1:E:50:GLU:HG2	1:E:53:LYS:NZ	2.29	0.48
4:H:61:ILE:O	4:H:62:MSE:C	2.48	0.48
5:I:24:DA:H2''	5:I:25:DA:OP2	2.11	0.48
4:D:42:TYR:OH	4:D:46:LYS:HD2	2.14	0.48
3:C:111:ILE:HG12	1:E:51:ILE:HG21	1.95	0.48
5:I:-21:DC:C2	5:I:-20:DA:N7	2.81	0.48
5:J:-2:DG:H2''	5:J:-1:DT:H5'	1.96	0.48
5:J:36:DT:H5'	5:J:36:DT:H6	1.79	0.48
3:G:83:LEU:HD12	3:G:83:LEU:N	2.29	0.48
5:I:-20:DA:C1'	5:I:-19:DG:H5'	2.44	0.48
1:A:79:THR:HG21	1:A:84:PHE:CD2	2.49	0.48
1:A:90:ALA:HB2	2:B:83:ALA:N	2.29	0.48
3:C:83:LEU:HD13	4:D:61:ILE:HG21	1.96	0.48
4:D:116:LYS:HD3	4:D:116:LYS:C	2.34	0.48
2:F:69:ALA:HB2	2:F:89:ALA:HB2	1.96	0.48
4:H:70:PHE:CD1	4:H:70:PHE:C	2.88	0.48
1:A:48:LEU:CD1	1:A:52:ARG:NH2	2.74	0.47
2:B:45:ARG:HE	5:J:7:DA:C4'	2.26	0.47
2:B:52:GLU:OE2	2:B:55:ARG:HD2	2.13	0.47
3:G:85:LEU:HD23	3:G:108:LEU:HD23	1.95	0.47
5:I:-13:DT:C5	5:I:-12:DC:N4	2.81	0.47
5:I:37:DA:H2''	5:I:38:DG:C8	2.49	0.47
1:A:128:LEU:O	1:A:132:ILE:HG13	2.13	0.47
3:C:16:THR:O	3:C:19:SER:HB2	2.14	0.47
5:I:-20:DA:H2''	5:I:-19:DG:OP2	2.14	0.47
5:I:3:DC:C2	5:J:-2:DG:N2	2.82	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:70:VAL:C	2:B:73:THR:HG22	2.34	0.47
3:C:108:LEU:O	3:C:110:ASN:N	2.47	0.47
3:C:111:ILE:O	3:C:112:GLN:O	2.32	0.47
1:E:132:ILE:O	1:E:132:ILE:HG22	2.15	0.47
2:F:50:ILE:CG2	2:F:50:ILE:O	2.63	0.47
3:G:83:LEU:O	3:G:87:ILE:HG13	2.14	0.47
3:G:89:ASN:HD21	3:G:108:LEU:HD21	1.78	0.47
1:A:126:VAL:O	1:A:127:GLN:HG3	2.15	0.47
1:A:73:GLU:HA	1:A:76:VAL:CG2	2.44	0.47
2:B:72:TYR:HH	4:D:76:GLU:CD	2.17	0.47
1:A:85:ASN:HB2	2:B:80:THR:OG1	2.14	0.47
3:G:17:ARG:HG2	4:H:121:TYR:CE1	2.48	0.47
3:G:79:ILE:HG13	3:G:81:ARG:H	1.79	0.47
5:J:25:DA:N3	5:J:26:DT:N3	2.62	0.47
3:G:84:GLN:HA	3:G:102:ILE:HD12	1.95	0.47
3:C:38:ASN:C	3:C:40:SER:H	2.17	0.47
1:E:94:LEU:HD11	2:F:66:ILE:CD1	2.44	0.47
5:I:-17:DA:C2	5:J:18:DA:C2	3.02	0.47
1:A:127:GLN:NE2	2:B:53:GLU:OE2	2.47	0.47
4:H:37:TYR:CD1	4:H:66:VAL:HG11	2.49	0.47
1:A:126:VAL:HG12	1:A:126:VAL:O	2.14	0.47
1:E:118:ARG:HD3	1:E:122:PHE:HE2	1.79	0.47
1:E:61:LEU:HD13	2:F:36:ARG:HB2	1.96	0.47
4:H:67:ASN:OD1	4:H:67:ASN:N	2.44	0.47
1:A:128:LEU:HD21	1:E:112:LEU:HD23	1.96	0.47
1:E:131:ARG:HG3	1:E:131:ARG:NH1	2.30	0.47
2:F:47:SER:OG	2:F:48:GLY:N	2.48	0.47
5:I:-43:DT:C6	5:I:-42:DC:N4	2.83	0.47
5:J:18:DA:H2''	5:J:19:DC:H5'	1.89	0.47
5:J:-7:DT:H2''	5:J:-6:DG:N7	2.30	0.47
2:B:78:ARG:NH1	2:B:80:THR:O	2.48	0.47
1:E:61:LEU:HD13	2:F:36:ARG:CB	2.45	0.47
1:A:47:TRP:CE2	2:B:44:LYS:HD3	2.50	0.47
3:C:30:VAL:CG1	3:C:51:LEU:HD23	2.45	0.47
1:A:52:ARG:HG3	3:G:111:ILE:CD1	2.45	0.47
5:J:-46:DA:H2''	5:J:-45:DT:C6	2.49	0.47
1:E:67:PHE:CE1	2:F:62:LEU:HD11	2.31	0.46
5:J:17:DT:H1'	5:J:18:DA:H5''	1.96	0.46
5:J:57:DC:H2''	5:J:58:DG:C8	2.50	0.46
1:A:102:LEU:HD11	2:B:58:LEU:HD13	1.98	0.46
1:A:47:TRP:O	1:A:49:LYS:N	2.48	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:100:PHE:O	2:B:101:GLY:C	2.52	0.46
2:B:98:TYR:O	2:B:100:PHE:N	2.46	0.46
3:C:27:VAL:HG13	3:C:49:VAL:HA	1.97	0.46
3:G:102:ILE:HG23	4:H:61:ILE:CD1	2.39	0.46
3:G:30:VAL:HA	3:G:33:LEU:HD12	1.97	0.46
5:J:-39:DG:H1'	5:J:-38:DC:H5''	1.96	0.46
5:J:-40:DT:H2''	5:J:-39:DG:C8	2.50	0.46
2:B:86:VAL:O	2:B:89:ALA:HB3	2.16	0.46
2:B:93:GLN:CB	2:B:95:ARG:HD3	2.31	0.46
4:D:41:VAL:HG11	4:D:62:MSE:HB3	1.98	0.46
5:I:19:DC:H1'	5:I:20:DT:H5''	1.97	0.46
1:A:47:TRP:CZ2	2:B:44:LYS:HD3	2.50	0.46
3:C:81:ARG:HG2	3:C:81:ARG:HH11	1.81	0.46
4:D:37:TYR:N	4:D:37:TYR:HD2	2.13	0.46
1:E:125:ASP:C	1:E:127:GLN:H	2.19	0.46
2:F:64:ASN:HA	2:F:67:ARG:NH2	2.28	0.46
2:F:64:ASN:O	2:F:67:ARG:NH1	2.37	0.46
5:J:38:DG:N2	5:J:39:DC:C2	2.83	0.46
1:A:101:PHE:O	1:A:105:LEU:HB2	2.16	0.46
4:D:93:GLU:C	4:D:95:GLN:N	2.68	0.46
5:I:44:DA:N1	5:I:45:DA:C2	2.84	0.46
5:J:-18:DT:H1'	5:J:-17:DA:C5'	2.45	0.46
5:J:-18:DT:C2	5:J:-17:DA:C8	3.03	0.46
1:A:110:TYR:OH	2:B:44:LYS:HB2	2.15	0.46
2:B:51:TYR:HB3	2:B:55:ARG:HH12	1.80	0.46
4:D:45:LEU:HG	4:D:46:LYS:N	2.30	0.46
1:E:104:HIS:CE1	1:E:108:ASP:OD2	2.67	0.46
2:F:52:GLU:O	2:F:53:GLU:C	2.52	0.46
5:I:12:DG:OP2	5:I:12:DG:H2'	2.15	0.46
5:J:-9:DT:H2''	5:J:-8:DG:H5'	1.98	0.46
1:A:47:TRP:C	1:A:49:LYS:N	2.69	0.46
3:C:38:ASN:C	3:C:40:SER:N	2.68	0.46
4:D:71:GLU:C	4:D:71:GLU:OE1	2.53	0.46
1:E:74:ILE:HA	1:E:77:LYS:HE3	1.98	0.46
5:I:-12:DC:C1'	5:I:-11:DT:H5''	2.45	0.46
5:J:-31:DG:H2''	5:J:-30:DA:O5'	2.16	0.46
5:J:-33:DC:H2''	5:J:-32:DA:C8	2.50	0.46
1:A:121:LEU:O	2:B:47:SER:CB	2.62	0.46
1:A:129:ALA:HA	1:A:132:ILE:HB	1.98	0.46
4:D:93:GLU:O	4:D:95:GLN:N	2.49	0.46
3:G:29:ARG:O	3:G:30:VAL:C	2.54	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:118:ARG:HD3	1:E:122:PHE:CE2	2.50	0.46
4:D:41:VAL:CG1	4:D:62:MSE:HG3	2.43	0.46
3:G:37:GLY:HA3	3:G:39:TYR:CE2	2.50	0.46
5:J:-23:DC:C2'	5:J:-22:DT:C5'	2.93	0.46
5:J:39:DC:H2''	5:J:40:DA:C5'	2.46	0.46
3:C:111:ILE:HD11	1:E:52:ARG:HH11	1.81	0.45
1:E:66:PRO:HA	1:E:69:ARG:NH2	2.31	0.45
1:E:69:ARG:O	1:E:73:GLU:HB2	2.16	0.45
3:G:58:LEU:HA	3:G:61:GLU:HB3	1.97	0.45
5:I:-48:DT:H2''	5:I:-47:DC:C6	2.49	0.45
5:I:54:DT:H2''	5:I:55:DC:O5'	2.16	0.45
1:A:112:LEU:HD13	1:A:128:LEU:HD23	1.98	0.45
1:A:89:GLN:OE1	2:B:100:PHE:CE2	2.69	0.45
1:E:126:VAL:HG12	1:E:126:VAL:O	2.16	0.45
1:E:129:ALA:C	1:E:131:ARG:H	2.19	0.45
5:I:1:DA:H1'	5:I:2:DC:H5''	1.98	0.45
5:J:52:DA:C3'	5:J:53:DA:H5''	2.47	0.45
2:B:82:THR:O	2:B:83:ALA:C	2.55	0.45
3:C:103:ALA:O	3:C:104:GLN:HB2	2.15	0.45
5:J:-1:DT:H6	5:J:-1:DT:H2'	1.61	0.45
1:A:121:LEU:HD12	2:B:43:VAL:HG21	1.98	0.45
5:I:16:DT:H1'	5:I:17:DT:C5	2.52	0.45
1:A:63:ARG:HD3	1:A:63:ARG:HA	1.37	0.45
1:E:60:LEU:CD1	1:E:60:LEU:H	2.19	0.45
1:E:74:ILE:CG2	2:F:63:GLU:HG3	2.46	0.45
5:I:-35:DG:H2''	5:I:-34:DA:OP2	2.16	0.45
5:J:-54:DA:H2''	5:J:-53:DT:O5'	2.16	0.45
1:A:128:LEU:HG	1:A:132:ILE:CD1	2.47	0.45
5:I:-11:DT:H2''	5:I:-10:DT:O5'	2.16	0.45
5:J:-27:DA:H1'	5:J:-26:DA:C5	2.52	0.45
5:J:-41:DA:C2'	5:J:-40:DT:H5''	2.46	0.45
1:A:89:GLN:OE1	2:B:100:PHE:HE2	1.99	0.45
1:A:91:LEU:O	1:A:94:LEU:HB2	2.17	0.45
4:D:41:VAL:HG11	4:D:62:MSE:CG	2.45	0.45
4:D:76:GLU:HG2	4:D:101:LEU:CD2	2.45	0.45
2:F:67:ARG:HH11	2:F:68:ASP:H	1.65	0.45
5:I:-14:DT:C2'	5:I:-13:DT:OP2	2.60	0.45
2:B:26:ILE:C	2:B:28:GLY:N	2.70	0.45
2:B:60:VAL:O	2:B:63:GLU:HB2	2.17	0.45
5:J:-28:DG:H2''	5:J:-27:DA:C5'	2.42	0.45
1:A:61:LEU:CD1	2:B:37:LEU:HD23	2.46	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:78:ARG:CZ	2:B:82:THR:CG2	2.95	0.45
1:A:90:ALA:HA	2:B:83:ALA:HA	1.99	0.45
5:I:32:DT:H2''	5:I:33:DG:H8	1.81	0.45
5:J:-27:DA:H2''	5:J:-26:DA:N7	2.32	0.45
4:D:120:LYS:HG2	4:D:120:LYS:O	2.17	0.45
5:I:-3:DG:C1'	5:I:-2:DG:H5''	2.46	0.45
3:G:44:GLY:HA2	5:I:38:DG:H5''	1.99	0.45
5:I:-45:DT:H2''	5:I:-44:DT:C6	2.52	0.45
5:I:-54:DA:H2'	5:I:-53:DT:C5	2.52	0.45
5:J:-54:DA:H2'	5:J:-53:DT:H72	1.99	0.45
1:A:79:THR:O	1:A:80:ARG:HB2	2.17	0.44
2:B:51:TYR:O	2:B:55:ARG:NH1	2.50	0.44
3:C:16:THR:HG22	3:C:17:ARG:H	1.81	0.44
1:E:104:HIS:O	1:E:108:ASP:HB2	2.17	0.44
1:E:130:ARG:HD3	2:F:57:VAL:HG21	1.97	0.44
2:F:79:LYS:HD2	2:F:79:LYS:N	2.32	0.44
3:G:65:LEU:HA	3:G:68:ASN:ND2	2.32	0.44
4:H:120:LYS:O	4:H:120:LYS:HG2	2.16	0.44
2:B:98:TYR:HD2	4:H:61:ILE:HG23	1.82	0.44
5:I:10:DA:H2''	5:I:11:DA:C8	2.52	0.44
1:A:87:GLN:C	1:A:89:GLN:N	2.67	0.44
2:B:56:GLY:O	2:B:59:LYS:HB3	2.17	0.44
4:D:66:VAL:HG13	4:D:67:ASN:N	2.32	0.44
5:I:-34:DA:N6	5:J:33:DG:C6	2.85	0.44
5:I:-54:DA:H2'	5:I:-53:DT:H71	1.99	0.44
5:J:39:DC:H2''	5:J:40:DA:H5''	1.99	0.44
3:C:20:ARG:NH2	5:I:-42:DC:OP1	2.50	0.44
1:E:87:GLN:CD	2:F:82:THR:HB	2.38	0.44
5:J:28:DC:H2'	5:J:29:DT:H71	2.00	0.44
1:A:132:ILE:HG23	1:E:108:ASP:OD1	2.17	0.44
1:E:94:LEU:O	1:E:94:LEU:HD22	2.18	0.44
2:F:45:ARG:NE	5:J:-4:DT:H4'	2.33	0.44
5:I:35:DC:N4	5:J:-36:DA:C6	2.85	0.44
5:I:44:DA:H2''	5:I:45:DA:C5'	2.46	0.44
5:J:24:DA:C6	5:J:25:DA:C6	3.06	0.44
1:A:87:GLN:NE2	2:B:82:THR:CA	2.81	0.44
1:E:98:ALA:O	1:E:101:PHE:HB3	2.17	0.44
2:F:59:LYS:O	2:F:63:GLU:CB	2.64	0.44
4:H:119:THR:C	4:H:121:TYR:H	2.21	0.44
5:I:-49:DT:H2''	5:I:-48:DT:C6	2.53	0.44
5:J:-26:DA:H2''	5:J:-25:DT:C5'	2.42	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:40:ARG:O	2:F:40:ARG:HG2	2.18	0.44
5:J:51:DA:C2'	5:J:52:DA:O5'	2.50	0.44
1:A:67:PHE:CZ	2:B:62:LEU:HD11	2.53	0.44
3:C:63:LEU:HD13	4:D:45:LEU:HA	1.98	0.44
3:C:62:ILE:CD1	3:C:83:LEU:CD2	2.93	0.44
1:E:112:LEU:HD13	1:E:128:LEU:HB3	2.00	0.44
1:E:123:PRO:HB3	2:F:53:GLU:CG	2.48	0.44
1:E:123:PRO:C	1:E:125:ASP:N	2.71	0.44
5:I:0:DA:H61	5:J:0:DA:H61	1.65	0.44
5:I:-46:DA:H2''	5:I:-45:DT:H71	2.00	0.44
5:J:-28:DG:C6	5:J:-27:DA:N1	2.86	0.44
1:A:63:ARG:HB3	1:A:66:PRO:CD	2.48	0.44
1:A:102:LEU:HD11	2:B:58:LEU:CD1	2.48	0.44
1:E:86:TRP:O	1:E:87:GLN:C	2.57	0.44
2:F:44:LYS:CG	2:F:45:ARG:N	2.81	0.44
2:F:93:GLN:CB	2:F:95:ARG:HG3	2.46	0.44
4:H:111:VAL:CG1	4:H:112:SER:N	2.81	0.44
5:J:-24:DT:H1'	5:J:-23:DC:H5'	2.00	0.44
4:D:84:ASN:H	4:D:84:ASN:HD22	1.65	0.43
4:D:94:ILE:O	4:D:98:VAL:HG23	2.17	0.43
1:E:48:LEU:HG	1:E:51:ILE:HD12	1.99	0.43
1:A:96:GLU:OE2	3:G:104:GLN:NE2	2.51	0.43
4:H:49:HIS:CD2	4:H:52:THR:OG1	2.65	0.43
5:J:3:DC:H2''	5:J:4:DA:N7	2.32	0.43
1:E:91:LEU:O	1:E:95:GLN:HB2	2.17	0.43
2:F:25:ASN:HD22	2:F:25:ASN:N	2.16	0.43
5:I:-46:DA:C6	5:J:45:DA:N6	2.86	0.43
2:B:35:ARG:O	2:B:37:LEU:N	2.50	0.43
2:B:51:TYR:O	2:B:55:ARG:HG3	2.17	0.43
5:I:2:DC:H2''	5:I:3:DC:OP2	2.18	0.43
5:J:60:DT:C6	5:J:60:DT:H5'	2.53	0.43
1:A:101:PHE:O	1:A:105:LEU:CB	2.67	0.43
4:D:118:VAL:HG13	4:D:119:THR:N	2.34	0.43
1:E:110:TYR:O	1:E:113:THR:N	2.49	0.43
1:E:63:ARG:NH1	1:E:66:PRO:HG2	2.33	0.43
3:G:70:ALA:HA	3:G:82:HIS:CE1	2.53	0.43
2:B:72:TYR:CD1	4:D:80:LEU:HD13	2.52	0.43
3:C:105:GLY:C	1:E:58:THR:HG22	2.38	0.43
4:H:37:TYR:O	4:H:41:VAL:HG23	2.18	0.43
5:I:4:DA:N3	5:J:-3:DG:N2	2.66	0.43
2:F:45:ARG:CZ	5:J:-4:DT:H4'	2.49	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:J:-9:DT:H1'	5:J:-8:DG:H5''	1.99	0.43
1:A:63:ARG:NH2	2:B:36:ARG:HH12	2.13	0.43
2:B:82:THR:HG23	2:B:85:ASP:OD2	2.19	0.43
1:E:115:HIS:C	1:E:117:GLY:H	2.22	0.43
1:A:113:THR:C	1:A:115:HIS:N	2.72	0.43
3:C:60:ALA:HB2	4:D:44:VAL:HG11	2.01	0.43
1:E:61:LEU:HB2	2:F:37:LEU:HD23	2.00	0.43
3:G:85:LEU:O	3:G:89:ASN:HB2	2.18	0.43
5:I:0:DA:N1	5:J:0:DA:N1	2.67	0.43
5:I:30:DT:H2''	5:I:31:DC:C5'	2.48	0.43
3:C:17:ARG:NH2	5:I:-43:DT:OP2	2.52	0.43
1:E:119:VAL:HG12	1:E:119:VAL:O	2.18	0.43
1:E:62:ILE:HG21	2:F:29:ILE:CD1	2.49	0.43
5:J:28:DC:H1'	5:J:29:DT:C5'	2.49	0.43
5:J:35:DC:H2''	5:J:36:DT:C5'	2.49	0.43
4:H:105:GLU:OE1	4:H:105:GLU:HA	2.18	0.43
5:I:0:DA:OP2	5:I:0:DA:H8	2.02	0.43
5:I:-22:DT:H2'	5:I:-22:DT:H6	1.72	0.43
5:I:1:DA:C2	5:I:2:DC:C2	3.07	0.43
5:J:-45:DT:H2''	5:J:-44:DT:OP2	2.18	0.43
5:J:-54:DA:H1'	5:J:-53:DT:H5'	2.01	0.43
1:A:60:LEU:HB3	1:A:99:GLU:OE2	2.19	0.43
2:B:99:GLY:C	2:B:100:PHE:CD1	2.92	0.43
3:C:111:ILE:HD11	1:E:52:ARG:HG3	1.99	0.43
1:E:129:ALA:C	1:E:131:ARG:N	2.72	0.43
2:F:36:ARG:HG3	2:F:36:ARG:NH1	2.34	0.43
2:F:45:ARG:HD3	5:J:-4:DT:H4'	2.01	0.43
3:G:17:ARG:HD2	3:G:27:VAL:HG11	2.00	0.43
5:I:-46:DA:H2''	5:I:-45:DT:C6	2.54	0.43
5:I:-51:DT:H2''	5:I:-50:DC:OP2	2.19	0.43
5:J:7:DA:H1'	5:J:8:DC:C5	2.54	0.43
1:A:118:ARG:HD3	1:A:122:PHE:HE2	1.82	0.42
1:A:57:SER:HB2	1:A:59:HIS:CE1	2.54	0.42
1:A:87:GLN:HB2	1:A:90:ALA:CB	2.49	0.42
4:D:45:LEU:C	4:D:47:GLN:H	2.22	0.42
1:E:65:LEU:O	1:E:66:PRO:C	2.57	0.42
4:H:112:SER:O	4:H:116:LYS:HB3	2.19	0.42
1:A:56:LYS:HE3	1:A:56:LYS:HB2	1.78	0.42
1:A:60:LEU:HA	1:A:99:GLU:OE2	2.19	0.42
3:C:62:ILE:HD11	3:C:83:LEU:HD23	1.99	0.42
3:G:89:ASN:HD21	3:G:108:LEU:CD2	2.33	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:J:0:DA:C2'	5:J:1:DA:H5'	2.39	0.42
3:C:66:ALA:CA	3:C:86:ALA:HB2	2.49	0.42
5:J:-11:DT:H1'	5:J:-10:DT:H5'	2.00	0.42
5:J:-46:DA:C8	5:J:-46:DA:H5'	2.54	0.42
1:E:75:CYS:C	1:E:77:LYS:N	2.72	0.42
1:E:92:LEU:HD22	1:E:92:LEU:HA	1.86	0.42
2:F:76:ALA:HB2	4:H:84:ASN:HD22	1.83	0.42
5:J:32:DT:H6	5:J:32:DT:H2'	1.65	0.42
3:C:42:ARG:HD3	5:J:39:DC:C5'	2.48	0.42
5:J:41:DT:H1'	5:J:42:DG:H5''	2.01	0.42
5:J:49:DA:H1'	5:J:50:DG:C5'	2.43	0.42
1:A:73:GLU:CA	1:A:76:VAL:HG23	2.48	0.42
1:E:52:ARG:HG3	1:E:52:ARG:HH11	1.84	0.42
2:F:35:ARG:O	2:F:39:ARG:HG2	2.20	0.42
5:I:36:DT:H1'	5:I:37:DA:H5'	2.00	0.42
1:A:115:HIS:C	1:A:117:GLY:H	2.22	0.42
1:E:113:THR:CG2	1:E:125:ASP:OD1	2.51	0.42
1:E:63:ARG:CZ	5:J:-13:DT:H5''	2.50	0.42
1:E:64:LYS:N	1:E:64:LYS:HD2	2.35	0.42
2:F:27:GLN:HE22	2:F:55:ARG:HD3	1.84	0.42
2:F:84:MET:HE2	2:F:88:TYR:CZ	2.54	0.42
3:G:90:ASP:OD2	3:G:93:LEU:HG	2.19	0.42
4:H:70:PHE:HD1	4:H:70:PHE:C	2.23	0.42
4:H:84:ASN:C	4:H:86:ARG:N	2.72	0.42
5:J:48:DA:H2''	5:J:49:DA:H8	1.84	0.42
3:C:47:ALA:HB3	3:C:48:PRO:CD	2.50	0.42
4:D:119:THR:OG1	4:D:120:LYS:N	2.52	0.42
2:F:67:ARG:CB	2:F:67:ARG:CZ	2.92	0.42
5:I:47:DG:C2	5:J:-46:DA:C2	3.07	0.42
4:H:95:GLN:C	4:H:97:ALA:N	2.72	0.42
1:A:109:ALA:C	1:A:111:LEU:N	2.73	0.42
1:A:99:GLU:C	1:A:101:PHE:H	2.23	0.42
2:B:78:ARG:NH2	2:B:82:THR:HG23	2.35	0.42
3:C:102:ILE:HD12	4:D:61:ILE:HG23	2.01	0.42
3:C:30:VAL:O	3:C:31:HIS:C	2.57	0.42
3:C:42:ARG:NE	5:J:39:DC:H5'	2.35	0.42
4:D:112:SER:HA	4:D:115:THR:HB	2.02	0.42
1:E:75:CYS:O	1:E:77:LYS:N	2.53	0.42
5:I:-5:DC:H4'	5:I:-4:DT:OP1	2.20	0.42
5:J:0:DA:H2''	5:J:1:DA:C8	2.51	0.42
5:J:-54:DA:H2''	5:J:-53:DT:H6	1.85	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:75:HIS:CE1	4:D:80:LEU:HG	2.55	0.41
3:C:23:LEU:HB3	3:C:24:GLN:H	1.68	0.41
3:G:70:ALA:O	3:G:75:LYS:O	2.39	0.41
5:I:-11:DT:C2	5:I:-10:DT:N3	2.88	0.41
5:I:-6:DG:H1'	5:I:-5:DC:H5'	2.02	0.41
5:J:-23:DC:C2'	5:J:-22:DT:H5''	2.49	0.41
1:A:129:ALA:O	1:A:131:ARG:N	2.53	0.41
2:F:73:THR:HG21	2:F:81:VAL:CA	2.50	0.41
3:G:36:LYS:C	3:G:38:ASN:N	2.73	0.41
3:G:80:PRO:HA	3:G:83:LEU:HD13	2.02	0.41
5:I:-12:DC:H2''	5:I:-11:DT:OP2	2.19	0.41
5:I:-43:DT:H72	5:I:-42:DC:N4	2.35	0.41
1:A:109:ALA:C	1:A:111:LEU:H	2.23	0.41
1:A:99:GLU:C	1:A:101:PHE:N	2.74	0.41
4:D:37:TYR:C	4:D:39:ILE:H	2.23	0.41
5:I:27:DT:H2'	5:I:27:DT:H6	1.72	0.41
5:I:-31:DG:H2''	5:I:-30:DA:H8	1.85	0.41
5:J:7:DA:H2''	5:J:8:DC:OP2	2.20	0.41
3:C:62:ILE:CD1	3:C:83:LEU:HD22	2.42	0.41
1:E:67:PHE:O	1:E:70:LEU:HB3	2.20	0.41
2:F:49:LEU:C	2:F:51:TYR:N	2.74	0.41
2:B:36:ARG:NH2	5:I:-13:DT:OP1	2.53	0.41
5:I:30:DT:H2''	5:I:31:DC:H5'	2.02	0.41
5:J:1:DA:H2''	5:J:2:DC:H6	1.83	0.41
5:J:-43:DT:C4	5:J:-42:DC:N4	2.88	0.41
5:J:-46:DA:H5'	5:J:-46:DA:H8	1.84	0.41
5:J:-5:DC:H2''	5:J:-4:DT:OP2	2.20	0.41
1:A:95:GLN:O	1:A:96:GLU:C	2.58	0.41
1:E:111:LEU:HA	1:E:111:LEU:HD23	1.89	0.41
2:F:97:LEU:C	2:F:98:TYR:HD1	2.24	0.41
3:G:29:ARG:CG	3:G:33:LEU:HD11	2.45	0.41
5:J:22:DA:H1'	5:J:23:DG:C8	2.55	0.41
1:A:78:PHE:CD1	2:B:67:ARG:HG3	2.55	0.41
3:C:26:PRO:O	3:C:30:VAL:HG23	2.21	0.41
1:E:92:LEU:O	1:E:95:GLN:HB3	2.20	0.41
4:D:82:HIS:NE2	3:G:37:GLY:HA2	2.35	0.41
3:G:95:LYS:O	3:G:96:LEU:C	2.59	0.41
5:I:-53:DT:H2'	5:I:-53:DT:H6	1.76	0.41
1:A:78:PHE:CZ	2:B:67:ARG:HB2	2.55	0.41
2:B:73:THR:OG1	2:B:78:ARG:NH1	2.52	0.41
3:C:37:GLY:O	3:C:38:ASN:HB2	2.21	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:121:TYR:O	4:D:124:ALA:N	2.54	0.41
3:G:30:VAL:O	3:G:31:HIS:C	2.59	0.41
5:I:27:DT:H2''	5:I:28:DC:C5	2.56	0.41
5:I:39:DC:H1'	5:I:40:DA:C5'	2.50	0.41
5:J:-22:DT:C2	5:J:-21:DC:N3	2.89	0.41
5:J:55:DC:C1'	5:J:56:DC:H5''	2.51	0.41
3:C:32:ARG:O	3:C:35:ARG:N	2.52	0.41
1:E:117:GLY:O	1:E:118:ARG:O	2.38	0.41
1:A:110:TYR:CD1	2:B:43:VAL:HG13	2.56	0.41
4:D:122:THR:C	4:D:124:ALA:H	2.24	0.41
4:D:49:HIS:C	4:D:51:ASP:H	2.24	0.41
2:F:25:ASN:ND2	2:F:25:ASN:N	2.69	0.41
3:G:42:ARG:HB2	3:G:42:ARG:HH11	1.86	0.41
5:J:-45:DT:H2'	5:J:-45:DT:H6	1.69	0.41
1:A:73:GLU:C	1:A:75:CYS:N	2.74	0.41
1:A:106:PHE:CD2	2:B:38:ALA:HA	2.55	0.41
1:E:60:LEU:HB3	1:E:99:GLU:OE1	2.21	0.41
2:F:33:ALA:HA	2:F:36:ARG:HG2	2.02	0.41
5:I:42:DG:H1'	5:I:43:DA:H5''	2.03	0.41
5:J:-25:DT:C2'	5:J:-24:DT:C7	2.98	0.41
5:J:31:DC:H2'	5:J:32:DT:H71	2.03	0.41
5:J:54:DT:H1'	5:J:55:DC:H5''	2.02	0.41
1:A:47:TRP:HB3	1:A:48:LEU:H	1.46	0.41
4:D:104:GLY:O	4:D:107:ALA:HB3	2.20	0.41
4:D:98:VAL:O	4:D:99:ARG:C	2.58	0.41
3:G:63:LEU:HD13	4:H:45:LEU:HB2	2.03	0.41
2:B:45:ARG:CD	5:I:-4:DT:H4'	2.50	0.41
5:J:38:DG:H2''	5:J:39:DC:OP2	2.20	0.41
5:J:-51:DT:H2''	5:J:-50:DC:O5'	2.21	0.41
1:A:62:ILE:HG23	2:B:29:ILE:HG23	2.02	0.40
1:A:87:GLN:NE2	2:B:83:ALA:N	2.65	0.40
1:A:87:GLN:CD	2:B:83:ALA:H	2.23	0.40
2:B:90:LEU:C	2:B:92:ARG:N	2.75	0.40
3:C:47:ALA:HB2	4:D:89:ILE:O	2.21	0.40
1:E:64:LYS:O	1:E:67:PHE:HB3	2.21	0.40
1:E:84:PHE:HB3	1:E:85:ASN:H	1.68	0.40
3:G:85:LEU:HD22	3:G:89:ASN:HD21	1.85	0.40
5:J:15:DG:H2''	5:J:16:DT:H71	2.03	0.40
5:J:-18:DT:H1'	5:J:-17:DA:O5'	2.21	0.40
2:F:45:ARG:CD	5:J:-4:DT:H4'	2.51	0.40
5:J:-54:DA:H2'	5:J:-53:DT:C7	2.51	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:J:8:DC:C2	5:J:9:DA:N7	2.89	0.40
1:A:47:TRP:CD1	2:B:44:LYS:HG2	2.57	0.40
2:B:31:LYS:HG3	2:B:51:TYR:CD1	2.55	0.40
2:B:70:VAL:HA	2:B:73:THR:CG2	2.48	0.40
2:B:67:ARG:O	2:B:70:VAL:HG12	2.21	0.40
3:C:63:LEU:HA	3:C:63:LEU:HD23	1.81	0.40
3:C:58:LEU:HD21	4:D:102:LEU:CD1	2.51	0.40
4:H:52:THR:HG22	4:H:53:GLY:N	2.36	0.40
5:I:-22:DT:H2''	5:I:-21:DC:O4'	2.21	0.40
5:I:30:DT:C1'	5:I:31:DC:H5''	2.46	0.40
3:G:77:ARG:CZ	5:J:-54:DA:H4'	2.51	0.40
1:A:50:GLU:C	1:A:52:ARG:H	2.23	0.40
1:A:84:PHE:HE1	2:B:78:ARG:O	2.04	0.40
3:C:100:VAL:O	3:C:101:THR:HG23	2.21	0.40
4:D:49:HIS:N	4:D:50:PRO:CD	2.80	0.40
3:G:79:ILE:CA	4:H:58:ALA:HB2	2.51	0.40
5:I:-15:DC:H2''	5:I:-14:DT:C6	2.56	0.40
5:I:-46:DA:C2'	5:I:-45:DT:H71	2.51	0.40
5:I:-8:DG:H1'	5:I:-7:DT:H5'	2.03	0.40
5:J:-42:DC:C5	5:J:-41:DA:N6	2.90	0.40
2:B:26:ILE:HG12	2:B:55:ARG:HB3	2.03	0.40
2:B:61:PHE:O	2:B:62:LEU:C	2.60	0.40
1:E:110:TYR:HA	1:E:113:THR:CG2	2.47	0.40
1:A:128:LEU:HD11	1:E:111:LEU:HD13	2.04	0.40
2:F:46:ILE:CG2	2:F:47:SER:N	2.85	0.40
2:F:34:ILE:HD13	2:F:51:TYR:HA	2.04	0.40
5:I:18:DA:C1'	5:I:19:DC:H5'	2.52	0.40
5:I:4:DA:H1'	5:I:5:DG:H5''	2.03	0.40
5:J:28:DC:C2'	5:J:29:DT:C5'	2.92	0.40
4:D:107:ALA:C	4:D:109:HIS:H	2.25	0.40
5:J:-23:DC:C1'	5:J:-22:DT:H5''	2.50	0.40
4:H:56:SER:HB2	5:J:-54:DA:OP2	2.21	0.40
5:J:-59:DA:H2''	5:J:-58:DC:C5'	2.30	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [\(i\)](#)

5.3.1 Protein backbone [\(i\)](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	87/143 (61%)	63 (72%)	15 (17%)	9 (10%)	0	7
1	E	79/143 (55%)	59 (75%)	16 (20%)	4 (5%)	2	20
2	B	76/106 (72%)	44 (58%)	18 (24%)	14 (18%)	0	2
2	F	77/106 (73%)	61 (79%)	13 (17%)	3 (4%)	3	27
3	C	95/133 (71%)	72 (76%)	19 (20%)	4 (4%)	3	25
3	G	98/133 (74%)	72 (74%)	21 (21%)	5 (5%)	2	20
4	D	88/129 (68%)	65 (74%)	16 (18%)	7 (8%)	1	11
4	H	88/129 (68%)	63 (72%)	20 (23%)	5 (6%)	1	18
All	All	688/1022 (67%)	499 (72%)	138 (20%)	51 (7%)	1	13

All (51) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	47	SER
2	B	49	LEU
2	B	99	GLY
4	D	49	HIS
1	E	118	ARG
2	F	101	GLY
4	H	47	GLN
4	H	85	LYS
1	A	47	TRP
2	B	30	THR
3	C	26	PRO
4	D	85	LYS
4	D	94	ILE
4	D	108	LYS
3	G	98	GLY
4	H	104	GLY
1	A	48	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	78	PHE
2	B	48	GLY
2	B	63	GLU
2	B	91	LYS
3	C	33	LEU
1	E	126	VAL
2	F	55	ARG
2	F	78	ARG
3	G	63	LEU
4	H	50	PRO
1	A	119	VAL
1	A	126	VAL
1	A	130	ARG
2	B	33	ALA
3	C	109	PRO
4	D	38	SER
4	D	45	LEU
3	G	95	LYS
3	G	99	ARG
1	A	114	LEU
2	B	31	LYS
2	B	36	ARG
2	B	38	ALA
2	B	64	ASN
3	C	61	GLU
4	D	46	LYS
3	G	40	SER
1	A	100	ALA
2	B	37	LEU
2	B	101	GLY
1	A	51	ILE
4	H	48	VAL
1	E	76	VAL
1	E	103	VAL

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	75/120 (62%)	67 (89%)	8 (11%)	6	32
1	E	71/120 (59%)	64 (90%)	7 (10%)	8	35
2	B	63/81 (78%)	54 (86%)	9 (14%)	3	21
2	F	64/81 (79%)	56 (88%)	8 (12%)	4	25
3	C	77/102 (76%)	68 (88%)	9 (12%)	5	29
3	G	79/102 (78%)	70 (89%)	9 (11%)	5	29
4	D	76/104 (73%)	67 (88%)	9 (12%)	5	28
4	H	76/104 (73%)	66 (87%)	10 (13%)	4	23
All	All	581/814 (71%)	512 (88%)	69 (12%)	5	27

All (69) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	47	TRP
1	A	63	ARG
1	A	65	LEU
1	A	68	SER
1	A	84	PHE
1	A	89	GLN
1	A	108	ASP
1	A	121	LEU
2	B	25	ASN
2	B	31	LYS
2	B	57	VAL
2	B	58	LEU
2	B	67	ARG
2	B	68	ASP
2	B	92	ARG
2	B	95	ARG
2	B	98	TYR
3	C	32	ARG
3	C	59	THR
3	C	62	ILE
3	C	72	ASP
3	C	76	THR
3	C	84	GLN
3	C	89	ASN
3	C	107	VAL
3	C	112	GLN
4	D	37	TYR

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
4	D	51	ASP
4	D	59	MSE
4	D	71	GLU
4	D	84	ASN
4	D	93	GLU
4	D	99	ARG
4	D	109	HIS
4	D	115	THR
1	E	60	LEU
1	E	64	LYS
1	E	85	ASN
1	E	92	LEU
1	E	94	LEU
1	E	107	GLU
1	E	108	ASP
2	F	25	ASN
2	F	36	ARG
2	F	67	ARG
2	F	73	THR
2	F	82	THR
2	F	85	ASP
2	F	93	GLN
2	F	95	ARG
3	G	15	LYS
3	G	39	TYR
3	G	40	SER
3	G	64	GLU
3	G	81	ARG
3	G	94	ASN
3	G	99	ARG
3	G	101	THR
3	G	107	VAL
4	H	49	HIS
4	H	59	MSE
4	H	70	PHE
4	H	71	GLU
4	H	82	HIS
4	H	85	LYS
4	H	86	ARG
4	H	93	GLU
4	H	105	GLU
4	H	111	VAL

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (21) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	59	HIS
1	A	87	GLN
1	A	95	GLN
1	A	104	HIS
2	B	75	HIS
3	C	31	HIS
3	C	38	ASN
3	C	104	GLN
4	D	63	ASN
4	D	84	ASN
4	D	95	GLN
1	E	55	GLN
2	F	25	ASN
2	F	27	GLN
3	G	31	HIS
3	G	68	ASN
3	G	73	ASN
3	G	89	ASN
3	G	104	GLN
4	H	49	HIS
4	H	84	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

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

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

6.3 Carbohydrates

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

6.4 Ligands

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

6.5 Other polymers

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