



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 2, 2023 – 03:19 AM EDT

PDB ID : 1BQH
Title : MURINE CD8AA ECTODOMAIN FRAGMENT IN COMPLEX WITH H-2KB/VSV8
Authors : Wang, J.H.; Reinherz, E.L.; Kern, P.S.; Chang, H.C.
Deposited on : 1998-08-16
Resolution : 2.80 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.34
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) : 2.34

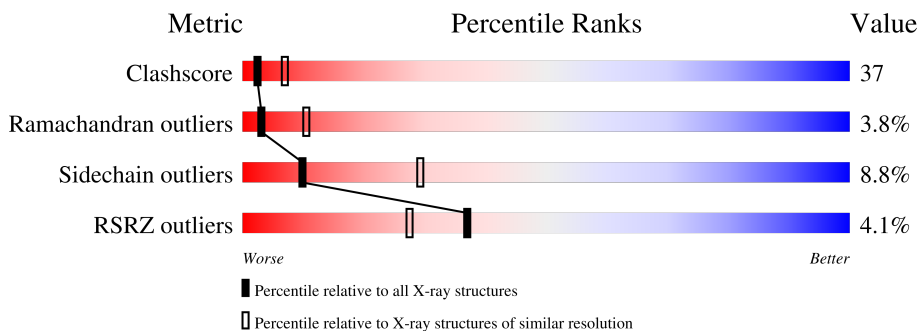
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.80 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))
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)
RSRZ outliers	127900	3078 (2.80-2.80)

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

Mol	Chain	Length	Quality of chain
1	A	274	50% 45% 6%
1	D	274	50% 43% 6% .
2	B	99	51% 46% .
2	E	99	51% 45% .
3	C	8	62% 38%
3	F	8	25% 62% 12%

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Mol	Chain	Length	Quality of chain
4	G	129	
4	H	129	
4	I	129	
4	K	129	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
5	NAG	G	130	X	-	X	X
5	NAG	I	130	X	-	-	X
5	NAG	K	130	-	-	X	-

2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 10204 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 PROTEIN (H-2 CLASS I HISTOCOMPATIBILITY ANTIGEN).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	274	Total 2232	C 1408	N 393	O 422	S 9	0	0	0
1	D	274	Total 2232	C 1408	N 393	O 422	S 9	0	0	0

- Molecule 2 is a protein called PROTEIN (BETA-2-MICROGLOBULIN).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	99	Total 821	C 524	N 138	O 152	S 7	0	0	0
2	E	99	Total 821	C 524	N 138	O 152	S 7	0	0	0

- Molecule 3 is a protein called PROTEIN (VSV8).

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
3	C	8	Total 68	C 44	N 12	O 12	0	0	0
3	F	8	Total 68	C 44	N 12	O 12	0	0	0

- Molecule 4 is a protein called PROTEIN (CD8A OR LYT2 OR LYT-2).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	G	122	Total 970	C 623	N 158	O 182	S 7	0	0	0
4	H	125	Total 987	C 632	N 161	O 187	S 7	0	0	0
4	I	122	Total 962	C 616	N 156	O 183	S 7	0	0	0

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	K	125	987	632	161	187	7	0	0	0

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	123	SER	ASN	conflict	UNP P01731
G	125	ALA	THR	conflict	UNP P01731
G	126	ASP	THR	conflict	UNP P01731
G	127	LEU	THR	conflict	UNP P01731
G	128	VAL	LYS	conflict	UNP P01731
H	123	SER	ASN	conflict	UNP P01731
H	125	ALA	THR	conflict	UNP P01731
H	126	ASP	THR	conflict	UNP P01731
H	127	LEU	THR	conflict	UNP P01731
H	128	VAL	LYS	conflict	UNP P01731
I	123	SER	ASN	conflict	UNP P01731
I	125	ALA	THR	conflict	UNP P01731
I	126	ASP	THR	conflict	UNP P01731
I	127	LEU	THR	conflict	UNP P01731
I	128	VAL	LYS	conflict	UNP P01731
K	123	SER	ASN	conflict	UNP P01731
K	125	ALA	THR	conflict	UNP P01731
K	126	ASP	THR	conflict	UNP P01731
K	127	LEU	THR	conflict	UNP P01731
K	128	VAL	LYS	conflict	UNP P01731

- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C₈H₁₅NO₆).

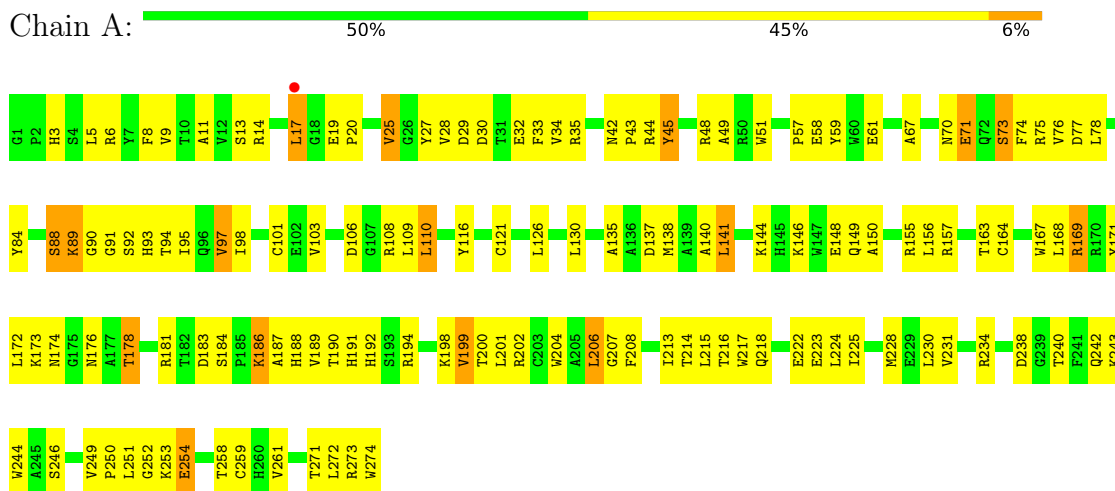


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
5	G	1	Total 14	8	1	5	0	0
5	H	1	Total 14	8	1	5	0	0
5	I	1	Total 14	8	1	5	0	0
5	K	1	Total 14	8	1	5	0	0

3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: PROTEIN (H-2 CLASS I HISTOCOMPATIBILITY ANTIGEN)

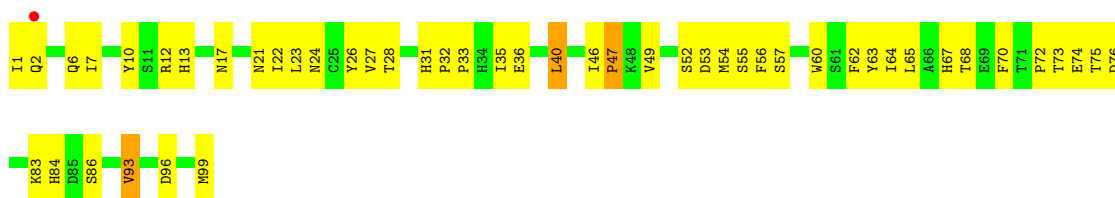


- Molecule 1: PROTEIN (H-2 CLASS I HISTOCOMPATIBILITY ANTIGEN)

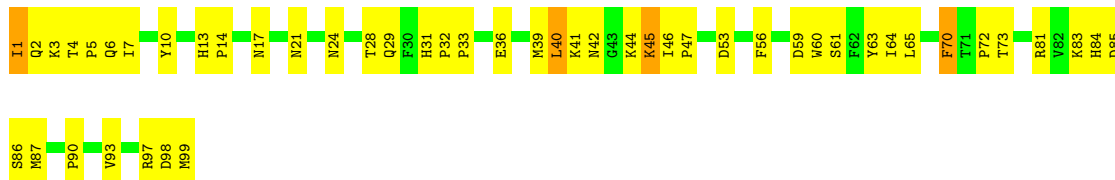


- Molecule 2: PROTEIN (BETA-2-MICROGLOBULIN)

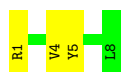




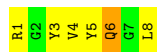
• Molecule 2: PROTEIN (BETA-2-MICROGLOBULIN)



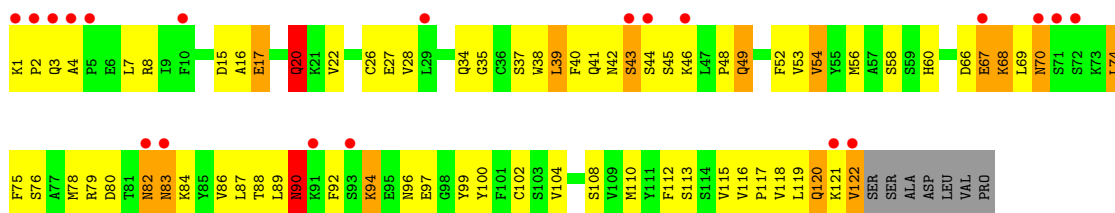
• Molecule 3: PROTEIN (VSV8)



• Molecule 3: PROTEIN (VSV8)



• Molecule 4: PROTEIN (CD8A OR LYT2 OR LYT-2)

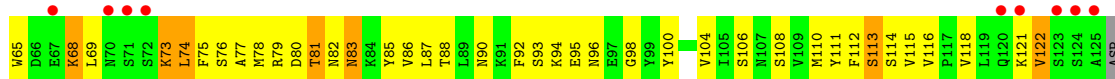
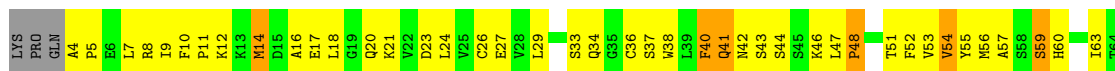


• Molecule 4: PROTEIN (CD8A OR LYT2 OR LYT-2)

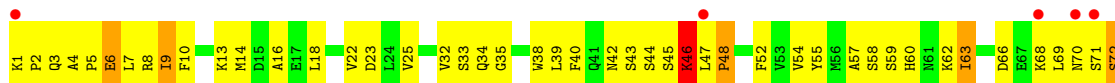




• Molecule 4: PROTEIN (CD8A OR LYT2 OR LYT-2)



• Molecule 4: PROTEIN (CD8A OR LYT2 OR LYT-2)



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	85.90Å 98.40Å 170.60Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	15.00 – 2.80 28.84 – 2.80	Depositor EDS
% Data completeness (in resolution range)	88.5 (15.00-2.80) 89.6 (28.84-2.80)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.06	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.17 (at 2.80Å)	Xtrriage
Refinement program	X-PLOR 3.8	Depositor
R, R_{free}	0.212 , 0.296 0.241 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å ²)	38.8	Xtrriage
Anisotropy	0.038	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 56.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.90	EDS
Total number of atoms	10204	wwPDB-VP
Average B, all atoms (Å ²)	36.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 21.24 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 7.3207e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.44	0/2293	0.60	0/3113
1	D	0.44	0/2293	0.60	0/3113
2	B	0.48	0/847	0.67	0/1148
2	E	0.45	0/847	0.64	1/1148 (0.1%)
3	C	0.55	0/69	0.66	0/90
3	F	0.51	0/69	0.64	0/90
4	G	0.51	0/992	0.82	2/1340 (0.1%)
4	H	0.52	0/1009	0.80	1/1363 (0.1%)
4	I	0.56	0/983	0.75	0/1328
4	K	0.51	0/1009	0.79	1/1363 (0.1%)
All	All	0.48	0/10411	0.69	5/14096 (0.0%)

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	G	122	VAL	N-CA-C	7.27	130.64	111.00
4	G	20	GLN	N-CA-C	5.71	126.43	111.00
4	H	53	VAL	CB-CA-C	-5.51	100.93	111.40
2	E	1	ILE	CA-C-N	-5.12	105.94	117.20
4	K	122	VAL	N-CA-C	-5.04	97.40	111.00

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	2232	0	2123	146	2
1	D	2232	0	2123	140	6
2	B	821	0	796	54	0
2	E	821	0	796	62	0
3	C	68	0	67	13	0
3	F	68	0	67	13	0
4	G	970	0	972	115	0
4	H	987	0	988	103	2
4	I	962	0	956	96	0
4	K	987	0	988	91	0
5	G	14	0	13	10	0
5	H	14	0	13	6	0
5	I	14	0	13	3	0
5	K	14	0	13	3	6
All	All	10204	0	9928	752	8

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 37.

All (752) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:35:ARG:NH1	2:B:53:ASP:HB3	1.45	1.30
1:D:121:CYS:SG	2:E:1:ILE:HG21	1.76	1.25
4:H:95:GLU:HG3	5:H:130:NAG:O3	1.35	1.22
1:A:35:ARG:NH1	2:B:53:ASP:CB	2.02	1.22
4:G:43:SER:OG	5:G:130:NAG:H82	1.39	1.20
4:H:95:GLU:CG	5:H:130:NAG:O3	1.93	1.16
1:A:35:ARG:HH12	2:B:53:ASP:CB	1.58	1.14
1:A:198:LYS:O	1:A:199:VAL:HG23	1.46	1.10
4:G:99:TYR:CE1	4:G:117:PRO:HB3	1.87	1.10
4:K:91:LYS:HG3	4:K:91:LYS:O	1.43	1.09
1:A:169:ARG:CG	1:A:169:ARG:HH11	1.66	1.07
4:G:76:SER:HB2	4:G:88:THR:HG23	1.30	1.07
4:I:44:SER:OG	5:I:130:NAG:H82	1.51	1.06
4:G:2:PRO:O	4:G:4:ALA:N	1.88	1.04
1:A:224:LEU:HA	4:G:34:GLN:HE22	1.22	1.04
4:G:99:TYR:HB3	4:G:115:VAL:CG2	1.88	1.03
1:A:187:ALA:HB1	1:A:272:LEU:HD11	1.36	1.03

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:G:94:LYS:H	4:G:94:LYS:HD2	1.23	1.03
1:D:108:ARG:O	1:D:109:LEU:HD12	1.59	1.02
2:B:96:ASP:HB3	2:B:99:MET:HG3	1.42	1.01
1:D:104:GLY:HA3	1:D:110:LEU:HD22	1.02	1.01
1:D:121:CYS:SG	2:E:1:ILE:HD13	2.02	1.00
4:G:40:PHE:HE1	4:G:42:ASN:OD1	1.44	1.00
1:D:104:GLY:CA	1:D:110:LEU:HD22	1.92	1.00
1:A:169:ARG:HH11	1:A:169:ARG:HG2	1.23	1.00
1:A:9:VAL:HG22	1:A:97:VAL:HG13	1.41	0.99
1:A:130:LEU:HD23	1:A:157:ARG:HG3	1.44	0.97
4:H:79:ARG:HH11	4:H:79:ARG:HB3	1.26	0.97
1:A:35:ARG:NH2	2:B:54:MET:O	1.98	0.96
4:I:42:ASN:OD1	4:I:43:SER:O	1.84	0.95
4:I:4:ALA:HB1	4:I:5:PRO:HD2	1.48	0.95
4:G:40:PHE:CE1	4:G:42:ASN:OD1	2.18	0.95
4:H:95:GLU:HG3	5:H:130:NAG:HO3	1.28	0.95
4:H:95:GLU:CB	5:H:130:NAG:O3	2.15	0.95
4:G:49:GLN:HE21	4:G:49:GLN:HA	1.26	0.95
4:G:99:TYR:HB3	4:G:115:VAL:HG22	1.49	0.95
4:I:59:SER:OG	4:I:60:HIS:ND1	1.99	0.94
1:A:204:TRP:HH2	2:B:99:MET:O	1.50	0.94
4:G:16:ALA:HB1	4:G:20:GLN:CD	1.87	0.94
1:A:204:TRP:CH2	2:B:99:MET:O	2.21	0.93
1:D:108:ARG:C	1:D:109:LEU:HD12	1.89	0.93
4:G:2:PRO:C	4:G:4:ALA:H	1.69	0.93
1:D:104:GLY:HA3	1:D:110:LEU:CD2	1.98	0.93
4:G:22:VAL:HG12	4:G:89:LEU:HB2	1.49	0.93
1:D:28:VAL:HG23	1:D:33:PHE:CD1	2.04	0.93
2:E:36:GLU:HB3	2:E:83:LYS:HB3	1.52	0.92
1:A:70:ASN:HD22	3:C:5:TYR:HD1	1.17	0.92
1:A:70:ASN:ND2	3:C:5:TYR:HD1	1.68	0.91
1:D:106:ASP:N	1:D:106:ASP:OD1	2.04	0.90
4:H:60:HIS:ND1	4:H:62:LYS:HB3	1.85	0.89
1:A:35:ARG:NH1	2:B:53:ASP:HB2	1.86	0.89
2:E:7:ILE:HD12	2:E:7:ILE:H	1.38	0.89
4:I:40:PHE:HE1	4:I:42:ASN:HB3	1.38	0.88
1:A:9:VAL:HG22	1:A:97:VAL:CG1	2.04	0.87
1:A:121:CYS:SG	2:B:1:ILE:HG22	2.15	0.87
1:A:19:GLU:HB3	1:A:20:PRO:HD2	1.54	0.87
4:I:115:VAL:HG11	4:K:48:PRO:O	1.74	0.87
4:G:94:LYS:HD2	4:G:94:LYS:N	1.90	0.86

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:155:ARG:HH21	3:C:4:VAL:HG13	1.39	0.86
4:I:106:SER:HB3	4:I:111:TYR:HE2	1.40	0.86
4:I:122:VAL:HG23	4:I:122:VAL:O	1.74	0.86
1:D:263:HIS:CD2	1:D:265:GLY:H	1.94	0.86
4:H:63:ILE:HD13	4:H:63:ILE:H	1.39	0.86
1:A:192:HIS:HB2	1:A:200:THR:HG23	1.58	0.85
1:D:87:GLN:NE2	1:D:118:TYR:OH	2.10	0.85
4:K:91:LYS:O	4:K:91:LYS:CG	2.25	0.85
2:B:2:GLN:HE22	2:B:32:PRO:HD3	1.42	0.85
2:E:5:PRO:HG2	2:E:87:MET:CE	2.06	0.85
1:A:35:ARG:HH12	2:B:53:ASP:HB2	1.39	0.85
4:K:120:GLN:O	4:K:122:VAL:HG23	1.77	0.84
4:I:79:ARG:HD3	4:I:85:TYR:CE2	2.11	0.84
4:H:23:ASP:HB3	4:H:88:THR:HG22	1.60	0.84
2:E:3:LYS:HE3	2:E:29:GLN:HG3	1.59	0.84
4:H:53:VAL:HG12	4:H:54:VAL:N	1.93	0.84
4:I:59:SER:HG	4:I:60:HIS:H	1.26	0.84
1:D:224:LEU:HA	4:I:34:GLN:HE22	1.42	0.83
4:H:53:VAL:HG12	4:H:54:VAL:HB	1.60	0.83
4:H:97:GLU:HG3	4:H:119:LEU:HA	1.58	0.83
4:I:44:SER:HG	5:I:130:NAG:H82	1.40	0.83
4:H:46:LYS:H	4:H:46:LYS:HD2	1.43	0.83
1:A:35:ARG:HH12	2:B:53:ASP:HB3	1.18	0.83
4:I:74:LEU:H	4:I:74:LEU:HD23	1.44	0.82
4:G:82:ASN:O	4:G:84:LYS:HG2	1.80	0.82
4:H:60:HIS:CE1	4:H:62:LYS:HB3	2.15	0.82
1:D:224:LEU:HA	4:I:34:GLN:NE2	1.93	0.81
2:B:36:GLU:HB3	2:B:83:LYS:HB3	1.62	0.81
4:G:83:ASN:C	4:G:83:ASN:HD22	1.84	0.81
4:G:99:TYR:CD1	4:G:117:PRO:HB3	2.15	0.81
4:G:97:GLU:HG2	4:G:119:LEU:HD23	1.63	0.81
1:A:73:SER:O	1:A:76:VAL:HG22	1.81	0.80
4:H:99:TYR:HB3	4:H:115:VAL:HG21	1.64	0.80
4:K:63:ILE:HD13	4:K:63:ILE:H	1.46	0.80
1:A:198:LYS:O	1:A:199:VAL:CG2	2.28	0.80
4:G:78:MET:HG2	4:G:86:VAL:CG1	2.11	0.80
4:H:99:TYR:HB3	4:H:115:VAL:CG2	2.12	0.80
4:G:43:SER:CB	5:G:130:NAG:H82	2.12	0.79
1:D:14:ARG:HB3	1:D:17:LEU:HB3	1.64	0.79
4:G:43:SER:O	4:G:45:SER:N	2.16	0.79
4:G:115:VAL:CG1	4:H:47:LEU:HB3	2.12	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:G:118:VAL:HG23	4:G:118:VAL:O	1.83	0.79
4:G:94:LYS:H	4:G:94:LYS:CD	1.95	0.78
4:G:7:LEU:HD11	4:G:104:VAL:HG22	1.64	0.78
2:E:81:ARG:HH21	2:E:90:PRO:HG3	1.47	0.78
4:I:43:SER:O	4:I:44:SER:HB2	1.83	0.78
1:D:109:LEU:HG	1:D:165:VAL:HG11	1.66	0.77
4:G:43:SER:HG	5:G:130:NAG:H82	1.49	0.77
4:H:5:PRO:HG3	4:H:32:VAL:HG23	1.66	0.76
1:A:215:LEU:HD23	1:A:261:VAL:HG22	1.67	0.76
4:I:40:PHE:CE1	4:I:42:ASN:HB3	2.20	0.76
1:D:56:GLY:HA3	1:D:58:GLU:OE2	1.85	0.76
1:D:73:SER:O	1:D:76:VAL:HG22	1.86	0.76
4:I:73:LYS:H	4:I:73:LYS:HD3	1.49	0.76
2:E:3:LYS:CE	2:E:29:GLN:HG3	2.16	0.76
1:A:224:LEU:HA	4:G:34:GLN:NE2	2.01	0.76
1:A:187:ALA:CB	1:A:272:LEU:HD11	2.14	0.75
4:K:92:PHE:CE1	4:K:118:VAL:HG12	2.22	0.75
1:D:155:ARG:NH2	3:F:4:VAL:O	2.19	0.75
4:I:63:ILE:HD12	4:I:65:TRP:HE1	1.49	0.75
4:I:63:ILE:HG13	4:I:63:ILE:O	1.85	0.74
4:K:18:LEU:HD21	4:K:120:GLN:HE22	1.50	0.74
2:B:46:ILE:HG23	2:B:47:PRO:HD2	1.70	0.74
4:I:106:SER:HB3	4:I:111:TYR:CE2	2.21	0.74
2:B:96:ASP:HB3	2:B:99:MET:CG	2.17	0.73
1:D:234:ARG:NH1	1:D:242:GLN:OE1	2.22	0.73
4:K:40:PHE:HE1	4:K:98:GLY:HA3	1.53	0.73
1:D:182:THR:HB	1:D:264:GLN:HE21	1.54	0.73
4:H:95:GLU:HA	5:H:130:NAG:O3	1.89	0.72
4:H:9:ILE:H	4:H:9:ILE:HD12	1.53	0.72
4:I:53:VAL:HG12	4:I:54:VAL:HG22	1.71	0.72
1:A:121:CYS:SG	2:B:1:ILE:CG2	2.77	0.72
1:D:5:LEU:HB2	1:D:168:LEU:HD13	1.71	0.72
1:A:169:ARG:CG	1:A:169:ARG:NH1	2.39	0.72
1:A:192:HIS:HB2	1:A:200:THR:CG2	2.21	0.71
4:G:40:PHE:HZ	5:G:130:NAG:H62	1.56	0.71
4:I:54:VAL:HG21	4:I:87:LEU:HD13	1.72	0.71
4:K:43:SER:HB2	4:K:98:GLY:HA2	1.73	0.71
4:G:115:VAL:HG11	4:H:47:LEU:HB3	1.73	0.71
1:D:28:VAL:HG23	1:D:33:PHE:CE1	2.25	0.70
4:K:18:LEU:HD21	4:K:120:GLN:NE2	2.06	0.70
1:D:35:ARG:NH1	2:E:53:ASP:HB3	2.06	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:G:16:ALA:HB1	4:G:20:GLN:OE1	1.91	0.70
4:H:53:VAL:HG12	4:H:54:VAL:CB	2.21	0.70
4:K:124:SER:O	4:K:125:ALA:HB3	1.91	0.70
4:H:95:GLU:CA	5:H:130:NAG:O3	2.40	0.69
1:A:138:MET:HA	1:A:141:LEU:HD23	1.73	0.69
1:D:44:ARG:HG2	1:D:45:TYR:N	2.08	0.69
1:A:13:SER:HB3	1:A:78:LEU:HD13	1.74	0.69
1:D:121:CYS:SG	2:E:1:ILE:CD1	2.79	0.69
2:E:41:LYS:HB2	2:E:46:ILE:HD11	1.73	0.69
4:G:66:ASP:HB3	4:G:69:LEU:HB2	1.75	0.68
4:H:109:VAL:HG23	4:H:111:TYR:CE2	2.28	0.68
1:D:70:ASN:ND2	3:F:5:TYR:CD1	2.61	0.68
1:A:169:ARG:HG2	1:A:169:ARG:NH1	2.04	0.68
4:K:71:SER:O	4:K:73:LYS:N	2.27	0.68
2:E:7:ILE:HD12	2:E:7:ILE:N	2.09	0.68
1:D:70:ASN:ND2	3:F:5:TYR:HD1	1.91	0.68
1:D:108:ARG:C	1:D:109:LEU:CD1	2.62	0.68
4:I:76:SER:HB2	4:I:88:THR:OG1	1.94	0.67
1:A:155:ARG:NH2	3:C:4:VAL:HG13	2.08	0.67
4:G:22:VAL:HG13	4:G:89:LEU:HD13	1.75	0.67
4:K:106:SER:HB3	4:K:111:TYR:HE2	1.58	0.67
4:I:46:LYS:H	4:I:46:LYS:HD3	1.59	0.67
4:G:68:LYS:HE3	4:G:69:LEU:HD22	1.75	0.66
4:I:78:MET:HG3	4:I:86:VAL:CG1	2.25	0.66
4:I:59:SER:OG	4:I:60:HIS:N	2.28	0.66
1:D:104:GLY:H	1:D:110:LEU:HB2	1.60	0.66
4:I:44:SER:OG	5:I:130:NAG:C8	2.37	0.66
1:A:135:ALA:HB1	1:A:140:ALA:HB3	1.77	0.66
4:I:78:MET:HG3	4:I:86:VAL:HG12	1.75	0.66
1:D:29:ASP:O	1:D:30:ASP:HB2	1.95	0.66
4:H:121:LYS:HG3	4:H:121:LYS:O	1.95	0.66
4:H:63:ILE:HD13	4:H:63:ILE:N	2.08	0.66
2:E:32:PRO:CB	2:E:33:PRO:HD2	2.26	0.66
4:H:92:PHE:CD1	4:H:92:PHE:C	2.69	0.66
4:G:80:ASP:HB3	4:G:84:LYS:HB2	1.76	0.66
4:G:1:LYS:N	4:G:2:PRO:HD3	2.12	0.65
4:I:57:ALA:HB1	4:I:59:SER:OG	1.95	0.65
4:H:79:ARG:HB3	4:H:79:ARG:NH1	2.06	0.65
4:I:73:LYS:H	4:I:73:LYS:CD	2.09	0.65
4:I:42:ASN:CG	4:I:43:SER:O	2.34	0.65
1:D:114:GLN:NE2	1:D:156:LEU:HD21	2.12	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:5:PRO:HG2	2:E:87:MET:HE1	1.79	0.65
4:K:40:PHE:CE1	4:K:98:GLY:HA3	2.32	0.65
4:K:97:GLU:HG3	4:K:119:LEU:HA	1.78	0.65
1:A:189:VAL:HG23	1:A:274:TRP:HE3	1.61	0.65
4:H:77:ALA:HB2	4:H:87:LEU:HD12	1.78	0.65
1:D:95:ILE:HA	1:D:117:ALA:O	1.97	0.64
4:K:1:LYS:N	4:K:2:PRO:CD	2.60	0.64
1:A:35:ARG:HH11	2:B:53:ASP:CB	2.08	0.64
1:D:156:LEU:O	1:D:160:LEU:HG	1.97	0.64
1:A:171:TYR:OH	3:C:1:ARG:HB3	1.97	0.64
2:B:7:ILE:HG21	2:B:93:VAL:HG11	1.80	0.64
1:D:194:ARG:HB3	1:D:195:PRO:HD2	1.80	0.64
4:G:121:LYS:O	4:G:122:VAL:HG12	1.99	0.63
1:D:133:TRP:NE1	1:D:153:ALA:HB2	2.13	0.63
4:H:92:PHE:C	4:H:92:PHE:HD1	2.02	0.63
4:K:63:ILE:HG12	4:K:63:ILE:O	1.98	0.63
4:K:100:TYR:O	4:K:116:VAL:HG12	1.98	0.63
1:D:272:LEU:H	1:D:272:LEU:HD22	1.63	0.63
1:A:76:VAL:HG23	1:A:77:ASP:N	2.14	0.62
1:A:250:PRO:HG2	1:A:253:LYS:HB3	1.81	0.62
4:K:101:PHE:HB3	4:K:115:VAL:HA	1.81	0.62
2:B:24:ASN:HB3	2:B:65:LEU:HD11	1.81	0.62
1:D:121:CYS:SG	2:E:1:ILE:CG2	2.70	0.62
2:E:45:LYS:HG3	2:E:46:ILE:N	2.15	0.62
2:E:5:PRO:HG2	2:E:87:MET:HE2	1.80	0.62
1:A:215:LEU:CD2	1:A:261:VAL:HG22	2.30	0.62
4:G:99:TYR:CB	4:G:115:VAL:CG2	2.73	0.62
4:G:43:SER:HB2	5:G:130:NAG:C7	2.30	0.62
4:H:82:ASN:O	4:H:84:LYS:HG2	1.99	0.62
4:I:59:SER:HG	4:I:60:HIS:CE1	2.10	0.62
4:K:92:PHE:HE1	4:K:118:VAL:HG12	1.64	0.62
1:D:230:LEU:C	1:D:230:LEU:HD12	2.19	0.62
4:G:97:GLU:HG2	4:G:119:LEU:CD2	2.30	0.62
1:A:169:ARG:HH11	1:A:169:ARG:HG3	1.57	0.62
4:G:99:TYR:HB3	4:G:115:VAL:HG23	1.80	0.61
1:D:135:ALA:HB1	1:D:140:ALA:HB3	1.81	0.61
1:A:20:PRO:CG	1:A:75:ARG:HG2	2.31	0.61
2:B:73:THR:HG22	2:B:75:THR:H	1.64	0.61
4:G:40:PHE:CZ	5:G:130:NAG:H62	2.36	0.61
4:H:116:VAL:O	4:H:116:VAL:HG23	1.99	0.61
1:D:97:VAL:HG13	1:D:115:GLN:O	2.00	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:G:49:GLN:HA	4:G:49:GLN:NE2	2.08	0.61
4:I:74:LEU:HD23	4:I:74:LEU:N	2.14	0.61
1:A:98:ILE:HG13	2:B:60:TRP:CZ3	2.35	0.60
4:H:106:SER:O	4:H:109:VAL:HG22	2.01	0.60
4:G:116:VAL:HG23	4:G:116:VAL:O	2.01	0.60
1:A:191:HIS:NE2	1:A:254:GLU:OE1	2.33	0.60
4:H:35:GLY:H	4:H:58:SER:HB3	1.67	0.60
4:I:110:MET:HE2	4:I:112:PHE:CZ	2.37	0.60
1:A:20:PRO:HG2	1:A:75:ARG:HG2	1.82	0.60
1:A:168:LEU:O	1:A:172:LEU:HB2	2.01	0.60
1:A:187:ALA:HB1	1:A:272:LEU:CD1	2.22	0.60
1:D:173:LYS:O	1:D:176:ASN:ND2	2.35	0.60
2:E:13:HIS:HB3	2:E:14:PRO:HD2	1.83	0.60
4:G:83:ASN:C	4:G:83:ASN:ND2	2.53	0.60
4:K:6:GLU:HG3	4:K:6:GLU:O	2.01	0.60
1:A:155:ARG:NH2	3:C:4:VAL:O	2.34	0.60
2:E:32:PRO:O	2:E:84:HIS:HE1	1.85	0.60
4:G:78:MET:HG2	4:G:86:VAL:HG13	1.83	0.60
2:B:46:ILE:CG2	2:B:47:PRO:HD2	2.31	0.60
2:E:2:GLN:HE21	2:E:85:ASP:C	2.05	0.60
4:I:4:ALA:HB1	4:I:5:PRO:CD	2.28	0.60
2:B:32:PRO:O	2:B:84:HIS:HE1	1.84	0.60
1:D:25:VAL:HG22	1:D:27:TYR:CE1	2.37	0.59
4:I:36:CYS:HA	4:I:104:VAL:HG12	1.84	0.59
4:G:67:GLU:OE2	4:H:4:ALA:HB2	2.02	0.59
4:G:120:GLN:HG2	4:G:121:LYS:N	2.17	0.59
1:A:25:VAL:HG22	1:A:27:TYR:CE1	2.37	0.59
4:G:39:LEU:HD23	4:G:52:PHE:HA	1.84	0.59
2:B:84:HIS:HD2	2:B:86:SER:OG	1.86	0.59
2:B:32:PRO:CB	2:B:33:PRO:HD2	2.33	0.59
1:D:175:GLY:O	1:D:179:LEU:HD23	2.03	0.59
4:G:22:VAL:CG1	4:G:89:LEU:HB2	2.29	0.59
4:G:49:GLN:OE1	4:H:115:VAL:HG12	2.02	0.59
4:I:122:VAL:O	4:I:122:VAL:CG2	2.46	0.59
1:D:96:GLN:NE2	2:E:60:TRP:HB3	2.18	0.59
1:D:10:THR:HG23	1:D:23:MET:HG3	1.85	0.58
4:H:17:GLU:OE1	4:H:20:GLN:NE2	2.35	0.58
4:I:108:SER:HB3	4:K:55:TYR:CD2	2.38	0.58
4:K:8:ARG:HB3	4:K:10:PHE:CZ	2.38	0.58
1:A:3:HIS:CG	1:A:172:LEU:HD21	2.38	0.58
1:D:176:ASN:HA	1:D:180:LEU:HD23	1.84	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:K:106:SER:HB3	4:K:111:TYR:CE2	2.37	0.58
1:D:119:ASP:O	2:E:1:ILE:HD12	2.04	0.58
2:E:7:ILE:H	2:E:7:ILE:CD1	2.13	0.58
4:H:23:ASP:CB	4:H:88:THR:HG22	2.32	0.58
1:A:184:SER:O	1:A:186:LYS:HE3	2.03	0.58
4:H:91:LYS:NZ	4:H:93:SER:HA	2.19	0.58
1:A:106:ASP:OD2	1:A:108:ARG:HD3	2.04	0.58
4:K:1:LYS:H3	4:K:2:PRO:CD	2.16	0.58
4:I:41:GLN:NE2	4:K:48:PRO:HB2	2.18	0.58
4:K:35:GLY:H	4:K:58:SER:HB3	1.68	0.58
4:G:16:ALA:HB1	4:G:20:GLN:NE2	2.18	0.58
4:H:33:SER:HB3	4:H:106:SER:HB2	1.86	0.58
4:H:46:LYS:H	4:H:46:LYS:CD	2.14	0.58
4:H:121:LYS:O	4:H:123:SER:N	2.37	0.58
1:A:19:GLU:HB3	1:A:20:PRO:CD	2.31	0.57
1:A:163:THR:HG22	3:C:1:ARG:N	2.19	0.57
1:D:96:GLN:HE21	2:E:60:TRP:HB3	1.67	0.57
2:E:28:THR:HG22	2:E:63:TYR:HB2	1.86	0.57
4:I:94:LYS:C	4:I:96:ASN:H	2.06	0.57
4:K:16:ALA:O	4:K:120:GLN:HA	2.03	0.57
4:G:1:LYS:H2	4:G:2:PRO:HD3	1.69	0.57
4:G:28:VAL:O	4:G:28:VAL:HG13	2.04	0.57
4:K:72:SER:O	4:K:73:LYS:HB2	2.04	0.57
1:A:164:CYS:O	1:A:168:LEU:HB2	2.05	0.57
4:G:42:ASN:O	4:G:45:SER:OG	2.14	0.57
4:I:11:PRO:O	4:I:116:VAL:HG11	2.04	0.57
1:A:194:ARG:HG3	1:A:194:ARG:HH11	1.68	0.57
1:A:207:GLY:HA2	1:A:240:THR:HB	1.87	0.57
1:A:251:LEU:HD12	1:A:254:GLU:OE2	2.04	0.57
4:K:22:VAL:O	4:K:88:THR:HA	2.05	0.57
4:K:75:PHE:CD1	4:K:89:LEU:CD2	2.88	0.57
4:I:48:PRO:O	4:K:115:VAL:HG11	2.04	0.57
2:E:3:LYS:HE2	2:E:29:GLN:HE21	1.70	0.57
1:A:5:LEU:HB2	1:A:168:LEU:HG	1.87	0.56
1:A:216:THR:O	1:A:259:CYS:HA	2.05	0.56
1:D:189:VAL:HA	1:D:202:ARG:O	2.05	0.56
2:B:57:SER:O	2:B:60:TRP:N	2.35	0.56
4:I:40:PHE:O	4:I:51:THR:OG1	2.20	0.56
4:I:54:VAL:HG13	4:I:65:TRP:CD2	2.40	0.56
1:D:123:TYR:HD2	1:D:124:ILE:HG22	1.70	0.56
1:D:152:GLU:HG2	3:F:6:GLN:HG3	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:152:GLU:CG	3:F:6:GLN:HG3	2.36	0.56
4:G:7:LEU:HD23	4:G:28:VAL:HA	1.88	0.56
4:K:92:PHE:HE2	4:K:120:GLN:HB3	1.70	0.56
1:A:28:VAL:HG23	1:A:33:PHE:CD1	2.41	0.56
4:K:44:SER:CB	5:K:130:NAG:H62	2.36	0.56
1:A:51:TRP:CD1	1:A:178:THR:HG21	2.40	0.56
4:H:19:GLY:HA2	4:H:91:LYS:HG2	1.87	0.56
2:B:73:THR:HG22	2:B:74:GLU:N	2.20	0.56
4:K:57:ALA:HB3	4:K:60:HIS:CD2	2.40	0.56
4:G:1:LYS:N	4:G:2:PRO:CD	2.68	0.56
4:K:66:ASP:OD2	4:K:68:LYS:HB3	2.06	0.56
1:A:187:ALA:O	1:A:188:HIS:HB3	2.06	0.56
1:A:70:ASN:ND2	3:C:5:TYR:CD1	2.60	0.55
1:D:35:ARG:HB3	1:D:48:ARG:HD3	1.88	0.55
4:G:2:PRO:C	4:G:4:ALA:N	2.41	0.55
1:A:137:ASP:O	1:A:141:LEU:HD22	2.06	0.55
1:D:22:TYR:HB3	1:D:71:GLU:HG3	1.87	0.55
4:G:22:VAL:HG13	4:G:22:VAL:O	2.06	0.55
4:G:43:SER:CB	5:G:130:NAG:C7	2.84	0.55
4:H:56:MET:HG2	4:H:63:ILE:HG22	1.87	0.55
2:B:40:LEU:HD12	2:B:40:LEU:N	2.21	0.55
4:G:80:ASP:HB3	4:G:84:LYS:CB	2.36	0.55
1:D:228:MET:HE2	1:D:230:LEU:HD23	1.88	0.55
1:D:234:ARG:HD3	2:E:10:TYR:CZ	2.42	0.55
4:G:7:LEU:HD22	4:G:26:CYS:SG	2.47	0.55
4:I:7:LEU:HD11	4:I:104:VAL:HG22	1.88	0.55
2:E:2:GLN:NE2	2:E:85:ASP:C	2.61	0.55
2:E:81:ARG:HH21	2:E:90:PRO:CG	2.18	0.55
1:D:133:TRP:HE1	1:D:153:ALA:HB2	1.71	0.55
1:A:76:VAL:CG2	1:A:77:ASP:N	2.69	0.54
4:G:43:SER:CB	5:G:130:NAG:C8	2.83	0.54
4:K:8:ARG:HB3	4:K:10:PHE:CE2	2.42	0.54
1:D:230:LEU:HD12	1:D:230:LEU:O	2.08	0.54
1:A:238:ASP:HB2	2:B:12:ARG:HD3	1.89	0.54
4:H:60:HIS:ND1	4:H:62:LYS:CB	2.66	0.54
1:D:97:VAL:HG12	1:D:98:ILE:N	2.23	0.54
1:D:202:ARG:HD2	1:D:244:TRP:CD2	2.43	0.54
2:E:24:ASN:HB3	2:E:65:LEU:HD11	1.90	0.54
4:K:75:PHE:HD1	4:K:89:LEU:CD2	2.19	0.54
4:G:90:ASN:N	4:G:90:ASN:HD22	2.05	0.54
4:G:115:VAL:HG13	4:G:115:VAL:O	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:H:1:LYS:N	4:H:1:LYS:HD2	2.23	0.54
4:I:11:PRO:HD2	4:I:24:LEU:HD23	1.90	0.54
1:A:49:ALA:HB1	1:A:51:TRP:NE1	2.23	0.53
4:G:118:VAL:O	4:G:118:VAL:CG2	2.55	0.53
4:I:40:PHE:HE1	4:I:42:ASN:CB	2.16	0.53
1:A:169:ARG:NH1	1:A:169:ARG:HG3	2.18	0.53
1:D:75:ARG:O	1:D:79:ARG:HG2	2.08	0.53
1:D:252:GLY:N	1:D:254:GLU:OE1	2.41	0.53
1:D:202:ARG:HD3	1:D:246:SER:HB3	1.90	0.53
4:I:116:VAL:HG23	4:I:116:VAL:O	2.07	0.53
4:H:109:VAL:HG21	4:H:111:TYR:OH	2.08	0.53
1:A:29:ASP:O	1:A:30:ASP:HB2	2.07	0.53
2:B:12:ARG:HG2	2:B:13:HIS:CE1	2.44	0.53
4:G:22:VAL:HG11	4:G:89:LEU:HD22	1.89	0.53
4:G:83:ASN:ND2	4:G:83:ASN:O	2.39	0.53
4:I:54:VAL:HG13	4:I:65:TRP:CE3	2.44	0.53
1:A:168:LEU:CD2	1:A:172:LEU:HD22	2.38	0.53
1:D:187:ALA:HA	1:D:204:TRP:O	2.09	0.53
4:I:74:LEU:HG	4:I:75:PHE:CD1	2.43	0.53
4:G:68:LYS:C	4:G:70:ASN:H	2.11	0.53
4:H:40:PHE:CZ	4:H:42:ASN:HA	2.44	0.53
1:A:169:ARG:HD3	1:A:169:ARG:N	2.24	0.53
4:I:8:ARG:HG3	4:I:29:LEU:HD13	1.90	0.53
1:A:11:ALA:HB3	1:A:95:ILE:HG23	1.91	0.52
4:I:55:TYR:CD2	4:K:108:SER:HB3	2.44	0.52
1:A:42:ASN:O	1:A:44:ARG:HG2	2.09	0.52
1:D:156:LEU:O	1:D:156:LEU:HD22	2.09	0.52
4:K:103:SER:HA	4:K:111:TYR:O	2.08	0.52
1:A:51:TRP:HB2	1:A:174:ASN:O	2.09	0.52
1:A:57:PRO:O	1:A:61:GLU:HG3	2.10	0.52
2:B:7:ILE:CG2	2:B:93:VAL:HG11	2.39	0.52
2:E:39:MET:O	2:E:46:ILE:HG12	2.10	0.52
4:K:39:LEU:HD22	4:K:52:PHE:HA	1.91	0.52
4:H:39:LEU:HB2	4:H:101:PHE:CE1	2.45	0.52
1:A:74:PHE:HE1	3:C:5:TYR:HB2	1.75	0.52
2:E:2:GLN:HE21	2:E:86:SER:N	2.08	0.52
2:E:41:LYS:CB	2:E:46:ILE:HD11	2.40	0.52
4:G:115:VAL:HG13	4:H:47:LEU:HB3	1.91	0.52
1:D:71:GLU:O	1:D:75:ARG:HG3	2.09	0.52
1:D:114:GLN:HE22	1:D:156:LEU:HD21	1.74	0.52
4:K:1:LYS:N	4:K:2:PRO:HD2	2.24	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:3:HIS:HA	1:D:29:ASP:OD1	2.10	0.52
4:G:92:PHE:O	4:G:92:PHE:CD2	2.63	0.52
4:H:74:LEU:HA	4:H:90:ASN:HB2	1.92	0.52
1:D:98:ILE:HG12	2:E:60:TRP:HZ3	1.75	0.52
2:E:6:GLN:NE2	4:K:1:LYS:O	2.43	0.52
4:I:42:ASN:OD1	4:I:42:ASN:C	2.47	0.52
4:K:1:LYS:H3	4:K:2:PRO:HD3	1.75	0.52
2:B:28:THR:HG22	2:B:63:TYR:HB2	1.91	0.51
4:G:76:SER:HB2	4:G:88:THR:CG2	2.21	0.51
2:B:27:VAL:HG11	2:B:35:ILE:HD11	1.91	0.51
1:D:202:ARG:HD2	1:D:244:TRP:CE3	2.45	0.51
4:G:45:SER:OG	4:G:45:SER:O	2.29	0.51
4:K:23:ASP:CG	4:K:88:THR:HG22	2.29	0.51
4:H:115:VAL:HG22	4:H:116:VAL:N	2.25	0.51
1:A:191:HIS:HD2	1:A:274:TRP:NE1	2.08	0.51
2:B:6:GLN:OE1	4:H:2:PRO:HA	2.10	0.51
4:G:68:LYS:C	4:G:70:ASN:N	2.64	0.51
1:D:176:ASN:OD1	1:D:177:ALA:N	2.44	0.51
4:G:99:TYR:CD1	4:G:117:PRO:CB	2.91	0.51
4:H:91:LYS:NZ	4:H:93:SER:CB	2.74	0.51
4:I:110:MET:HB2	4:K:52:PHE:CD1	2.45	0.51
4:K:58:SER:HB3	4:K:85:TYR:OH	2.11	0.51
2:B:27:VAL:HG11	2:B:35:ILE:CD1	2.40	0.51
1:D:185:PRO:HB3	1:D:208:PHE:HB3	1.92	0.51
1:A:202:ARG:HG3	1:A:246:SER:HB3	1.92	0.51
4:K:25:VAL:HG22	4:K:86:VAL:HG13	1.93	0.51
1:A:126:LEU:HD22	1:A:156:LEU:HD23	1.93	0.51
1:D:135:ALA:HB1	1:D:140:ALA:CB	2.41	0.51
4:G:43:SER:HB3	5:G:130:NAG:N2	2.25	0.51
1:D:224:LEU:CA	4:I:34:GLN:HE22	2.18	0.50
1:D:263:HIS:HD2	1:D:265:GLY:H	1.55	0.50
3:F:3:TYR:O	3:F:5:TYR:CD1	2.64	0.50
4:I:16:ALA:HB1	4:I:20:GLN:CD	2.32	0.50
2:B:73:THR:HB	2:B:76:ASP:HB2	1.92	0.50
1:D:35:ARG:CZ	2:E:53:ASP:HB3	2.41	0.50
4:I:68:LYS:O	4:I:69:LEU:HD22	2.12	0.50
4:K:7:LEU:HD21	4:K:104:VAL:HB	1.94	0.50
1:D:34:VAL:HG13	1:D:45:TYR:HE1	1.77	0.50
2:E:41:LYS:O	2:E:42:ASN:HB2	2.12	0.50
2:E:84:HIS:HB3	2:E:87:MET:HE2	1.93	0.50
1:A:91:GLY:O	1:A:93:HIS:CD2	2.64	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:H:19:GLY:HA2	4:H:91:LYS:CG	2.40	0.50
1:D:262:TYR:CD2	4:K:59:SER:HB2	2.47	0.50
4:H:3:GLN:CB	4:H:32:VAL:HG11	2.41	0.50
4:H:32:VAL:O	4:H:33:SER:HB3	2.10	0.50
4:H:58:SER:C	4:H:79:ARG:HH21	2.14	0.50
2:B:17:ASN:HA	2:B:72:PRO:O	2.12	0.50
4:G:22:VAL:CG1	4:G:89:LEU:HD13	2.40	0.50
4:H:81:THR:HG22	4:H:82:ASN:N	2.27	0.50
4:K:75:PHE:HD1	4:K:89:LEU:HD23	1.74	0.50
4:K:121:LYS:C	4:K:122:VAL:HG23	2.32	0.50
1:A:144:LYS:O	1:A:148:GLU:HG3	2.11	0.50
2:E:64:ILE:HG12	2:E:65:LEU:N	2.27	0.50
4:G:89:LEU:HD12	4:G:89:LEU:N	2.27	0.50
4:K:110:MET:HE2	4:K:112:PHE:CZ	2.47	0.50
1:D:158:ALA:O	1:D:162:GLY:N	2.41	0.49
4:G:40:PHE:HB2	4:G:99:TYR:O	2.12	0.49
4:H:122:VAL:HG22	4:H:122:VAL:O	2.12	0.49
4:H:9:ILE:CD1	4:H:12:LYS:HE3	2.42	0.49
4:I:79:ARG:HD3	4:I:85:TYR:CZ	2.47	0.49
1:D:72:GLN:HA	1:D:75:ARG:HD3	1.93	0.49
1:D:198:LYS:HD3	1:D:250:PRO:HA	1.94	0.49
4:I:92:PHE:CE1	4:I:118:VAL:HG12	2.47	0.49
4:K:119:LEU:N	4:K:119:LEU:HD13	2.28	0.49
2:B:55:SER:O	2:B:63:TYR:CD2	2.65	0.49
2:E:2:GLN:NE2	2:E:86:SER:HA	2.27	0.49
1:A:28:VAL:O	1:A:29:ASP:HB2	2.12	0.49
4:H:91:LYS:HZ2	4:H:93:SER:CA	2.26	0.49
1:A:44:ARG:HG2	1:A:44:ARG:HH11	1.78	0.49
1:D:228:MET:CE	1:D:230:LEU:HD23	2.42	0.49
4:I:27:GLU:OE1	4:I:29:LEU:HD11	2.13	0.49
4:K:105:ILE:CD1	4:K:110:MET:HG2	2.43	0.49
1:D:98:ILE:HG12	2:E:60:TRP:CZ3	2.48	0.49
2:B:32:PRO:CB	2:B:33:PRO:CD	2.91	0.49
4:I:59:SER:OG	4:I:60:HIS:CE1	2.64	0.49
1:D:19:GLU:CD	1:D:75:ARG:HH22	2.17	0.48
4:H:9:ILE:HD12	4:H:12:LYS:HE3	1.95	0.48
4:H:25:VAL:HG12	4:H:86:VAL:HG22	1.94	0.48
4:H:46:LYS:HG2	4:H:47:LEU:HG	1.95	0.48
1:D:109:LEU:CD1	1:D:109:LEU:N	2.76	0.48
4:K:124:SER:O	4:K:125:ALA:CB	2.59	0.48
4:G:43:SER:CB	5:G:130:NAG:N2	2.76	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:I:93:SER:OG	4:I:94:LYS:N	2.45	0.48
1:A:13:SER:O	1:A:92:SER:HB2	2.13	0.48
1:A:271:THR:O	1:A:271:THR:HG22	2.12	0.48
1:D:271:THR:HG23	1:D:271:THR:O	2.14	0.48
4:K:116:VAL:O	4:K:116:VAL:HG13	2.13	0.48
4:G:27:GLU:HG3	4:G:83:ASN:HD21	1.79	0.48
1:D:70:ASN:O	1:D:73:SER:HB3	2.13	0.48
1:D:201:LEU:O	1:D:246:SER:HA	2.14	0.48
4:H:91:LYS:NZ	4:H:93:SER:CA	2.77	0.48
1:D:234:ARG:HD2	1:D:242:GLN:HG3	1.96	0.48
2:E:2:GLN:NE2	2:E:85:ASP:O	2.47	0.48
2:E:21:ASN:HB3	2:E:70:PHE:CE1	2.49	0.48
4:G:74:LEU:HG	4:G:75:PHE:CD1	2.49	0.48
4:I:42:ASN:HA	4:I:98:GLY:HA3	1.96	0.48
4:K:59:SER:OG	4:K:60:HIS:N	2.47	0.48
1:D:217:TRP:CD2	1:D:259:CYS:HB2	2.48	0.47
4:I:17:GLU:O	4:I:20:GLN:HG2	2.14	0.47
4:K:74:LEU:O	4:K:90:ASN:ND2	2.47	0.47
1:D:192:HIS:HB2	1:D:200:THR:HB	1.97	0.47
1:A:70:ASN:ND2	3:C:5:TYR:H	2.11	0.47
1:D:51:TRP:O	1:D:54:GLN:HG2	2.15	0.47
1:D:141:LEU:HD13	1:D:141:LEU:HA	1.78	0.47
1:D:234:ARG:HD3	2:E:10:TYR:CE2	2.49	0.47
4:H:70:ASN:OD1	4:H:70:ASN:C	2.52	0.47
4:H:124:SER:O	4:H:125:ALA:HB3	2.14	0.47
1:A:163:THR:HG22	3:C:1:ARG:H3	1.77	0.47
1:D:243:LYS:HG2	1:D:244:TRP:N	2.29	0.47
4:G:108:SER:HB3	4:H:55:TYR:CD2	2.49	0.47
1:A:149:GLN:O	1:A:149:GLN:HG2	2.14	0.47
1:D:98:ILE:HD11	2:E:56:PHE:CE2	2.50	0.47
4:K:39:LEU:CD2	4:K:52:PHE:HA	2.45	0.47
1:A:252:GLY:C	1:A:254:GLU:H	2.17	0.47
4:I:54:VAL:HG22	4:I:65:TRP:CZ3	2.50	0.47
4:K:9:ILE:HD12	4:K:9:ILE:O	2.15	0.47
4:K:66:ASP:O	4:K:70:ASN:HA	2.15	0.47
4:G:100:TYR:O	4:G:116:VAL:HG22	2.14	0.47
4:I:26:CYS:HB2	4:I:38:TRP:CZ2	2.49	0.47
1:A:126:LEU:HD22	1:A:156:LEU:CD2	2.44	0.47
1:D:81:LEU:HD21	3:F:8:LEU:HD13	1.97	0.47
4:G:58:SER:O	4:G:79:ARG:NH1	2.48	0.47
4:K:45:SER:O	4:K:46:LYS:O	2.33	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:33:PHE:CE1	1:A:34:VAL:HG22	2.50	0.46
1:A:42:ASN:HB3	1:A:44:ARG:NH1	2.29	0.46
1:A:216:THR:HG23	1:A:228:MET:HE1	1.97	0.46
2:B:40:LEU:HD12	2:B:40:LEU:H	1.80	0.46
2:E:32:PRO:HB3	2:E:33:PRO:HD2	1.97	0.46
4:H:63:ILE:N	4:H:63:ILE:CD1	2.78	0.46
4:H:72:SER:O	4:H:73:LYS:HG2	2.16	0.46
1:D:203:CYS:HB2	1:D:217:TRP:CZ2	2.50	0.46
4:K:57:ALA:CB	4:K:60:HIS:CD2	2.98	0.46
1:A:6:ARG:NH1	1:A:30:ASP:OD1	2.48	0.46
1:A:258:THR:HG22	1:A:273:ARG:HB2	1.96	0.46
2:E:32:PRO:CB	2:E:33:PRO:CD	2.93	0.46
1:D:228:MET:CE	1:D:245:ALA:HB1	2.46	0.46
1:A:121:CYS:SG	2:B:1:ILE:HG23	2.55	0.46
4:H:74:LEU:HD23	4:H:74:LEU:N	2.31	0.46
4:K:47:LEU:HB3	4:K:48:PRO:HD2	1.98	0.46
4:H:46:LYS:HG2	4:H:47:LEU:N	2.31	0.46
4:K:4:ALA:HB1	4:K:111:TYR:CE1	2.50	0.46
4:K:68:LYS:HB3	4:K:68:LYS:HE2	1.74	0.46
2:B:13:HIS:HB2	2:B:21:ASN:HD21	1.81	0.46
3:F:3:TYR:O	3:F:5:TYR:CE1	2.69	0.46
1:A:13:SER:HA	1:A:20:PRO:HB3	1.98	0.45
1:A:32:GLU:OE2	1:A:35:ARG:HD2	2.16	0.45
1:A:94:THR:HG21	2:B:31:HIS:CE1	2.51	0.45
1:A:194:ARG:HG3	1:A:194:ARG:NH1	2.30	0.45
1:A:231:VAL:O	1:A:243:LYS:NZ	2.41	0.45
4:G:22:VAL:O	4:G:88:THR:HA	2.15	0.45
4:H:91:LYS:NZ	4:H:93:SER:HB3	2.30	0.45
1:A:32:GLU:OE2	1:A:48:ARG:HG3	2.15	0.45
1:A:190:THR:OG1	1:A:202:ARG:HB3	2.16	0.45
4:H:79:ARG:HH11	4:H:79:ARG:CB	2.13	0.45
1:D:95:ILE:O	1:D:95:ILE:HG12	2.16	0.45
1:D:176:ASN:O	1:D:180:LEU:HB2	2.16	0.45
4:G:1:LYS:H2	4:G:2:PRO:CD	2.27	0.45
2:B:21:ASN:OD1	2:B:22:ILE:N	2.45	0.45
2:B:52:SER:O	2:B:64:ILE:HD11	2.17	0.45
1:D:6:ARG:HH21	1:D:8:PHE:HZ	1.65	0.45
1:A:169:ARG:N	1:A:169:ARG:CD	2.80	0.45
2:E:2:GLN:HG2	2:E:86:SER:HB3	1.97	0.45
4:H:68:LYS:O	4:H:69:LEU:C	2.55	0.45
1:A:168:LEU:HD22	1:A:172:LEU:HD22	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:226:GLN:NE2	4:I:37:SER:OG	2.49	0.45
1:A:67:ALA:O	1:A:71:GLU:HB3	2.17	0.45
1:D:110:LEU:HD12	1:D:110:LEU:HA	1.77	0.45
1:D:175:GLY:O	1:D:179:LEU:CD2	2.65	0.45
4:H:121:LYS:C	4:H:123:SER:H	2.20	0.45
4:I:8:ARG:HD2	4:I:27:GLU:OE1	2.17	0.45
1:D:70:ASN:ND2	3:F:5:TYR:CE1	2.85	0.45
4:I:42:ASN:C	4:I:43:SER:O	2.53	0.45
4:I:52:PHE:HZ	4:I:55:TYR:HB2	1.81	0.45
1:A:95:ILE:HD11	1:A:116:TYR:HD2	1.82	0.44
4:G:15:ASP:O	4:G:121:LYS:HE2	2.17	0.44
1:A:20:PRO:HG3	1:A:75:ARG:HG2	1.98	0.44
4:G:69:LEU:HD22	4:G:69:LEU:N	2.32	0.44
4:I:73:LYS:O	4:I:73:LYS:HG2	2.18	0.44
4:G:38:TRP:HB3	4:G:87:LEU:HD22	1.98	0.44
4:K:86:VAL:HG12	4:K:87:LEU:N	2.33	0.44
4:H:23:ASP:HA	4:H:88:THR:HA	1.98	0.44
1:A:213:ILE:HG12	1:A:214:THR:N	2.33	0.44
4:G:66:ASP:OD2	4:G:69:LEU:HD23	2.18	0.44
4:I:94:LYS:C	4:I:96:ASN:N	2.71	0.44
1:A:78:LEU:HD21	1:A:95:ILE:HG22	1.98	0.44
2:E:73:THR:O	2:E:97:ARG:NH2	2.50	0.44
2:E:98:ASP:O	2:E:99:MET:HB2	2.17	0.44
1:A:35:ARG:O	1:A:45:TYR:HA	2.17	0.44
1:D:175:GLY:C	1:D:179:LEU:HD23	2.38	0.44
4:G:27:GLU:HG3	4:G:83:ASN:ND2	2.32	0.44
4:I:56:MET:HG2	4:I:63:ILE:HG22	1.99	0.44
1:A:242:GLN:O	1:A:243:LYS:HB2	2.18	0.44
1:D:9:VAL:HG22	1:D:24:GLU:HB3	2.00	0.44
4:G:53:VAL:HG12	4:G:54:VAL:CG2	2.48	0.44
4:I:14:MET:HA	4:I:14:MET:CE	2.48	0.44
1:A:201:LEU:O	1:A:246:SER:HB2	2.18	0.43
1:D:96:GLN:NE2	2:E:60:TRP:O	2.51	0.43
1:A:88:SER:OG	1:A:89:LYS:N	2.49	0.43
1:A:191:HIS:HB2	1:A:274:TRP:CZ2	2.53	0.43
1:A:234:ARG:HD2	2:B:10:TYR:CE1	2.52	0.43
1:D:156:LEU:HD23	3:F:3:TYR:CZ	2.53	0.43
2:E:84:HIS:HD2	2:E:86:SER:H	1.66	0.43
1:A:11:ALA:HB3	1:A:95:ILE:CG2	2.47	0.43
1:D:228:MET:HE1	1:D:245:ALA:HB1	1.99	0.43
1:D:247:VAL:O	1:D:247:VAL:HG13	2.17	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:H:41:GLN:HE21	4:H:41:GLN:HB3	1.56	0.43
4:H:100:TYR:O	4:H:116:VAL:HG22	2.19	0.43
4:K:23:ASP:OD1	4:K:88:THR:HG22	2.19	0.43
4:K:119:LEU:HD22	4:K:119:LEU:H	1.83	0.43
4:K:121:LYS:O	4:K:122:VAL:CG2	2.67	0.43
1:A:59:TYR:HE2	1:A:167:TRP:CZ3	2.37	0.43
4:G:7:LEU:CD1	4:G:104:VAL:HG22	2.42	0.43
4:G:35:GLY:HA3	4:G:56:MET:O	2.19	0.43
4:I:110:MET:HE2	4:I:112:PHE:CE2	2.53	0.43
1:A:14:ARG:HD2	1:A:92:SER:HB3	2.00	0.43
1:D:160:LEU:O	1:D:164:CYS:HB3	2.17	0.43
4:G:78:MET:O	4:G:86:VAL:HG12	2.18	0.43
4:H:26:CYS:HB2	4:H:38:TRP:CZ2	2.53	0.43
4:K:90:ASN:HD22	4:K:90:ASN:N	2.16	0.43
4:H:104:VAL:HG12	4:H:105:ILE:N	2.34	0.43
4:I:80:ASP:CG	4:I:81:THR:N	2.72	0.43
1:A:217:TRP:HA	1:A:259:CYS:HA	2.01	0.43
4:I:113:SER:HB2	4:I:114:SER:H	1.70	0.43
1:D:98:ILE:HD11	2:E:56:PHE:HE2	1.84	0.43
1:D:127:ASN:HB3	1:D:129:ASP:OD2	2.19	0.43
2:E:13:HIS:HB2	2:E:21:ASN:HD21	1.84	0.43
4:G:40:PHE:CD1	4:G:41:GLN:N	2.87	0.43
4:G:68:LYS:O	4:G:70:ASN:N	2.52	0.43
4:K:100:TYR:HB2	4:K:116:VAL:HG13	2.00	0.43
1:A:58:GLU:CD	1:A:58:GLU:H	2.22	0.42
1:A:189:VAL:HG23	1:A:274:TRP:CE3	2.48	0.42
1:D:229:GLU:O	1:D:229:GLU:HG3	2.19	0.42
4:G:37:SER:O	4:G:102:CYS:HA	2.19	0.42
1:A:225:ILE:H	1:A:225:ILE:HG13	1.66	0.42
2:E:31:HIS:ND1	2:E:32:PRO:HA	2.34	0.42
4:G:99:TYR:CE1	4:G:117:PRO:CB	2.80	0.42
4:G:110:MET:HE2	4:G:112:PHE:CZ	2.53	0.42
4:I:18:LEU:HA	4:I:92:PHE:O	2.19	0.42
4:I:56:MET:SD	4:I:77:ALA:HB1	2.60	0.42
1:A:8:PHE:HD2	2:B:56:PHE:CE2	2.37	0.42
1:A:224:LEU:CA	4:G:34:GLN:HE22	2.10	0.42
2:E:5:PRO:CG	2:E:87:MET:HE2	2.48	0.42
4:G:89:LEU:HD23	4:G:96:ASN:OD1	2.18	0.42
4:H:10:PHE:CD1	4:H:11:PRO:HA	2.54	0.42
4:I:121:LYS:C	4:I:122:VAL:HG22	2.40	0.42
4:K:1:LYS:H2	4:K:2:PRO:HD2	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:218:GLN:HA	1:A:222:GLU:O	2.20	0.42
1:D:19:GLU:HB3	1:D:20:PRO:HD2	2.00	0.42
4:H:74:LEU:HD23	4:H:74:LEU:H	1.85	0.42
4:H:91:LYS:HZ2	4:H:93:SER:HB3	1.84	0.42
4:I:80:ASP:CG	4:I:81:THR:H	2.23	0.42
1:D:12:VAL:HG13	1:D:12:VAL:O	2.19	0.42
1:D:79:ARG:HG2	1:D:79:ARG:H	1.72	0.42
1:D:185:PRO:CA	1:D:208:PHE:HB3	2.50	0.42
3:F:8:LEU:C	3:F:8:LEU:HD12	2.40	0.42
4:H:122:VAL:HG13	4:H:124:SER:OG	2.19	0.42
4:I:74:LEU:HG	4:I:75:PHE:CE1	2.53	0.42
4:I:75:PHE:HE2	4:I:100:TYR:HE2	1.67	0.42
1:A:110:LEU:HD22	1:A:110:LEU:HA	1.81	0.42
1:A:249:VAL:HB	1:A:250:PRO:HD2	2.02	0.42
2:E:59:ASP:OD2	2:E:61:SER:OG	2.32	0.42
4:G:92:PHE:O	4:G:92:PHE:CG	2.72	0.42
4:H:27:GLU:OE1	4:H:84:LYS:HE2	2.20	0.42
4:I:94:LYS:O	4:I:96:ASN:N	2.52	0.42
1:A:28:VAL:HG23	1:A:33:PHE:CE1	2.54	0.42
1:D:103:VAL:HG22	1:D:165:VAL:HG12	2.01	0.42
4:H:7:LEU:HD23	4:H:102:CYS:O	2.19	0.42
4:I:21:LYS:NZ	4:I:21:LYS:HB3	2.35	0.42
4:K:117:PRO:HB2	4:K:119:LEU:HD21	2.02	0.42
1:A:84:TYR:OH	1:A:146:LYS:NZ	2.43	0.42
1:D:130:LEU:HB3	1:D:157:ARG:HG3	2.02	0.42
4:H:110:MET:HB3	4:H:110:MET:HE2	1.75	0.42
4:K:5:PRO:HG3	4:K:32:VAL:HG23	2.02	0.42
4:K:44:SER:HB3	5:K:130:NAG:H62	2.01	0.42
4:K:92:PHE:CE2	4:K:120:GLN:HB3	2.53	0.42
1:A:74:PHE:HE1	3:C:5:TYR:CB	2.33	0.42
2:B:56:PHE:HA	2:B:62:PHE:HA	2.02	0.42
1:D:126:LEU:HD22	1:D:156:LEU:CD1	2.50	0.42
4:G:17:GLU:N	4:G:17:GLU:OE1	2.52	0.42
4:I:9:ILE:HG21	4:I:114:SER:O	2.19	0.42
4:I:56:MET:CE	4:I:85:TYR:HB3	2.50	0.42
4:I:115:VAL:O	4:I:115:VAL:HG23	2.19	0.42
4:K:121:LYS:C	4:K:122:VAL:CG2	2.88	0.42
1:D:15:PRO:HG2	1:D:90:GLY:O	2.20	0.42
1:D:151:GLY:O	1:D:154:GLU:HB2	2.20	0.42
2:E:40:LEU:HA	2:E:44:LYS:O	2.20	0.42
4:H:9:ILE:H	4:H:9:ILE:CD1	2.21	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:H:40:PHE:HE1	4:H:98:GLY:HA3	1.85	0.42
4:K:46:LYS:HE2	4:K:46:LYS:H	1.84	0.42
1:A:135:ALA:HB1	1:A:140:ALA:CB	2.47	0.41
1:D:34:VAL:HG22	1:D:45:TYR:CD1	2.55	0.41
1:D:44:ARG:HD2	1:D:46:GLU:HG2	2.01	0.41
1:A:17:LEU:HD23	1:A:17:LEU:N	2.35	0.41
2:B:84:HIS:CD2	2:B:86:SER:H	2.39	0.41
3:C:4:VAL:HG13	3:C:4:VAL:O	2.20	0.41
1:D:8:PHE:CE2	1:D:98:ILE:HD12	2.55	0.41
1:D:102:GLU:O	1:D:110:LEU:HB3	2.20	0.41
4:G:117:PRO:O	4:G:119:LEU:N	2.52	0.41
4:K:33:SER:OG	4:K:34:GLN:N	2.53	0.41
1:A:172:LEU:O	1:A:176:ASN:HB2	2.21	0.41
1:A:183:ASP:O	1:A:208:PHE:HA	2.20	0.41
1:A:206:LEU:HD23	1:A:242:GLN:HB3	2.00	0.41
1:D:70:ASN:CG	3:F:5:TYR:HD1	2.24	0.41
4:G:46:LYS:HA	4:G:46:LYS:HD3	1.64	0.41
4:H:63:ILE:HG13	4:H:65:TRP:HE1	1.85	0.41
4:H:105:ILE:HG12	4:H:110:MET:HG2	2.02	0.41
4:H:115:VAL:CG2	4:H:116:VAL:N	2.83	0.41
4:I:12:LYS:O	4:I:116:VAL:HG12	2.20	0.41
1:A:101:CYS:HB2	1:A:109:LEU:HD11	2.03	0.41
1:A:103:VAL:HG13	1:A:108:ARG:O	2.21	0.41
4:H:43:SER:HB2	4:H:98:GLY:HA2	2.01	0.41
4:H:54:VAL:HG22	4:H:55:TYR:N	2.35	0.41
1:A:199:VAL:HG21	1:A:251:LEU:HD13	2.03	0.41
1:A:202:ARG:HD3	1:A:244:TRP:CD2	2.55	0.41
1:D:225:ILE:H	1:D:225:ILE:HG13	1.69	0.41
2:E:29:GLN:OE1	4:K:3:GLN:NE2	2.53	0.41
4:H:16:ALA:HB1	4:H:20:GLN:NE2	2.36	0.41
4:H:69:LEU:O	4:H:70:ASN:C	2.59	0.41
4:K:81:THR:HB	4:K:82:ASN:H	1.61	0.41
4:K:103:SER:HB2	4:K:112:PHE:CD1	2.56	0.41
1:D:182:THR:HB	1:D:264:GLN:NE2	2.29	0.41
1:D:209:TYR:HA	1:D:210:PRO:C	2.40	0.41
4:G:60:HIS:ND1	4:G:60:HIS:N	2.68	0.41
4:G:8:ARG:HB2	4:G:27:GLU:HB3	2.01	0.41
1:D:97:VAL:CG1	1:D:98:ILE:N	2.84	0.41
4:H:5:PRO:HD2	4:H:111:TYR:CE2	2.56	0.41
4:H:38:TRP:HB2	4:H:54:VAL:HG12	2.02	0.41
4:K:42:ASN:C	4:K:44:SER:H	2.23	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:23:LEU:O	2:B:67:HIS:HA	2.20	0.41
1:D:98:ILE:CG1	2:E:60:TRP:CZ3	3.04	0.41
1:D:167:TRP:CZ2	3:F:1:ARG:NE	2.88	0.41
1:D:194:ARG:HG2	1:D:194:ARG:HH11	1.85	0.41
1:D:214:THR:HB	1:D:262:TYR:HB2	2.02	0.41
4:I:5:PRO:HA	4:I:29:LEU:O	2.21	0.41
4:I:43:SER:O	4:I:44:SER:CB	2.54	0.41
1:A:216:THR:HG21	1:A:223:GLU:HG2	2.03	0.41
1:D:22:TYR:CB	1:D:71:GLU:HG3	2.51	0.41
1:D:118:TYR:O	1:D:119:ASP:HB2	2.20	0.41
2:E:4:THR:HA	2:E:86:SER:OG	2.20	0.41
4:G:39:LEU:HA	4:G:53:VAL:HG23	2.01	0.41
4:H:80:ASP:HB3	4:H:81:THR:H	1.54	0.41
4:I:10:PHE:CG	4:I:11:PRO:HA	2.56	0.41
4:I:10:PHE:CD2	4:I:11:PRO:HA	2.56	0.41
4:K:92:PHE:HE2	4:K:120:GLN:CB	2.34	0.41
4:G:66:ASP:C	4:G:68:LYS:H	2.24	0.40
4:I:47:LEU:HA	4:I:48:PRO:HD3	1.98	0.40
4:K:69:LEU:CD1	5:K:130:NAG:C8	3.00	0.40
2:B:49:VAL:HG22	2:B:68:THR:HB	2.03	0.40
4:G:53:VAL:HG12	4:G:54:VAL:HG22	2.03	0.40
4:I:74:LEU:N	4:I:74:LEU:CD2	2.81	0.40
4:K:38:TRP:O	4:K:39:LEU:HD23	2.21	0.40
4:K:54:VAL:HG22	4:K:55:TYR:N	2.35	0.40
4:K:71:SER:O	4:K:74:LEU:N	2.54	0.40
1:A:98:ILE:HG13	2:B:60:TRP:HZ3	1.84	0.40
4:G:43:SER:C	4:G:45:SER:N	2.74	0.40
4:G:89:LEU:N	4:G:89:LEU:CD1	2.84	0.40
1:A:173:LYS:HA	1:A:173:LYS:HD3	1.61	0.40
4:H:44:SER:O	4:H:45:SER:HB2	2.21	0.40
4:I:54:VAL:HG21	4:I:87:LEU:CD1	2.48	0.40
2:B:10:TYR:OH	2:B:26:TYR:HB2	2.21	0.40
2:B:84:HIS:CD2	2:B:86:SER:OG	2.71	0.40
2:E:17:ASN:HA	2:E:72:PRO:O	2.22	0.40
4:G:38:TRP:O	4:G:53:VAL:HB	2.21	0.40
4:H:71:SER:HB3	4:H:74:LEU:HD11	2.04	0.40
4:H:91:LYS:HZ2	4:H:93:SER:CB	2.34	0.40
4:K:77:ALA:HB2	4:K:87:LEU:HD12	2.03	0.40

All (8) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:157:ARG:NH2	5:K:130:NAG:C4[4_556]	1.37	0.83
1:D:157:ARG:NH2	5:K:130:NAG:O4[4_556]	1.65	0.55
1:D:157:ARG:NH2	5:K:130:NAG:O3[4_556]	1.83	0.37
1:D:157:ARG:NH2	5:K:130:NAG:C3[4_556]	1.90	0.30
1:D:157:ARG:NH1	5:K:130:NAG:O3[4_556]	1.92	0.28
1:A:169:ARG:NH1	4:H:69:LEU:C[4_555]	2.02	0.18
1:D:157:ARG:CZ	5:K:130:NAG:O3[4_556]	2.04	0.16
1:A:169:ARG:NH1	4:H:70:ASN:N[4_555]	2.12	0.08

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	272/274 (99%)	245 (90%)	23 (8%)	4 (2%)	10	33
1	D	272/274 (99%)	245 (90%)	22 (8%)	5 (2%)	8	28
2	B	97/99 (98%)	86 (89%)	10 (10%)	1 (1%)	15	44
2	E	97/99 (98%)	88 (91%)	8 (8%)	1 (1%)	15	44
3	C	6/8 (75%)	6 (100%)	0	0	100	100
3	F	6/8 (75%)	6 (100%)	0	0	100	100
4	G	120/129 (93%)	91 (76%)	21 (18%)	8 (7%)	1	3
4	H	123/129 (95%)	97 (79%)	15 (12%)	11 (9%)	1	1
4	I	120/129 (93%)	96 (80%)	17 (14%)	7 (6%)	1	4
4	K	123/129 (95%)	99 (80%)	14 (11%)	10 (8%)	1	2
All	All	1236/1278 (97%)	1059 (86%)	130 (10%)	47 (4%)	3	10

All (47) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	47	PRO
1	D	110	LEU

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Mol	Chain	Res	Type
4	G	3	GLN
4	G	43	SER
4	G	44	SER
4	H	73	LYS
4	H	81	THR
4	I	59	SER
4	I	82	ASN
4	K	46	LYS
4	K	72	SER
4	K	81	THR
4	K	91	LYS
1	A	150	ALA
4	H	67	GLU
4	H	70	ASN
4	H	92	PHE
4	H	122	VAL
4	I	95	GLU
4	I	122	VAL
1	D	88	SER
1	D	106	ASP
4	G	67	GLU
4	H	33	SER
4	H	82	ASN
4	H	121	LYS
4	K	92	PHE
4	K	124	SER
2	E	47	PRO
4	H	69	LEU
4	I	83	ASN
4	I	90	ASN
4	K	13	LYS
1	A	199	VAL
4	G	82	ASN
4	G	90	ASN
4	I	48	PRO
4	K	48	PRO
4	K	122	VAL
1	A	43	PRO
1	D	90	GLY
4	G	113	SER
4	K	90	ASN
1	D	43	PRO

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Mol	Chain	Res	Type
4	G	48	PRO
1	A	90	GLY
4	H	48	PRO

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	232/232 (100%)	215 (93%)	17 (7%)	14	38
1	D	232/232 (100%)	209 (90%)	23 (10%)	8	23
2	B	94/94 (100%)	91 (97%)	3 (3%)	39	73
2	E	94/94 (100%)	90 (96%)	4 (4%)	29	62
3	C	6/6 (100%)	6 (100%)	0	100	100
3	F	6/6 (100%)	5 (83%)	1 (17%)	2	6
4	G	114/120 (95%)	102 (90%)	12 (10%)	7	20
4	H	116/120 (97%)	102 (88%)	14 (12%)	5	15
4	I	113/120 (94%)	101 (89%)	12 (11%)	6	20
4	K	116/120 (97%)	103 (89%)	13 (11%)	6	18
All	All	1123/1144 (98%)	1024 (91%)	99 (9%)	10	29

All (99) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	17	LEU
1	A	25	VAL
1	A	45	TYR
1	A	71	GLU
1	A	73	SER
1	A	88	SER
1	A	89	LYS
1	A	97	VAL
1	A	110	LEU
1	A	141	LEU

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Mol	Chain	Res	Type
1	A	169	ARG
1	A	178	THR
1	A	181	ARG
1	A	186	LYS
1	A	206	LEU
1	A	230	LEU
1	A	254	GLU
2	B	40	LEU
2	B	70	PHE
2	B	93	VAL
1	D	10	THR
1	D	14	ARG
1	D	17	LEU
1	D	25	VAL
1	D	30	ASP
1	D	45	TYR
1	D	63	GLU
1	D	88	SER
1	D	95	ILE
1	D	105	SER
1	D	106	ASP
1	D	110	LEU
1	D	128	GLU
1	D	129	ASP
1	D	141	LEU
1	D	149	GLN
1	D	152	GLU
1	D	156	LEU
1	D	181	ARG
1	D	182	THR
1	D	219	LEU
1	D	234	ARG
1	D	272	LEU
2	E	40	LEU
2	E	45	LYS
2	E	70	PHE
2	E	93	VAL
3	F	6	GLN
4	G	17	GLU
4	G	20	GLN
4	G	39	LEU
4	G	49	GLN

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Mol	Chain	Res	Type
4	G	54	VAL
4	G	68	LYS
4	G	70	ASN
4	G	74	LEU
4	G	83	ASN
4	G	90	ASN
4	G	94	LYS
4	G	120	GLN
4	H	9	ILE
4	H	15	ASP
4	H	20	GLN
4	H	23	ASP
4	H	41	GLN
4	H	46	LYS
4	H	48	PRO
4	H	62	LYS
4	H	63	ILE
4	H	67	GLU
4	H	74	LEU
4	H	79	ARG
4	H	92	PHE
4	H	119	LEU
4	I	14	MET
4	I	23	ASP
4	I	33	SER
4	I	40	PHE
4	I	41	GLN
4	I	54	VAL
4	I	68	LYS
4	I	73	LYS
4	I	74	LEU
4	I	81	THR
4	I	83	ASN
4	I	113	SER
4	K	6	GLU
4	K	9	ILE
4	K	14	MET
4	K	46	LYS
4	K	62	LYS
4	K	63	ILE
4	K	80	ASP
4	K	81	THR

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Mol	Chain	Res	Type
4	K	82	ASN
4	K	90	ASN
4	K	91	LYS
4	K	115	VAL
4	K	119	LEU

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

Mol	Chain	Res	Type
1	A	93	HIS
1	A	218	GLN
1	A	220	ASN
1	A	260	HIS
2	B	2	GLN
2	B	29	GLN
2	B	34	HIS
2	B	84	HIS
1	D	54	GLN
1	D	87	GLN
1	D	114	GLN
1	D	149	GLN
1	D	220	ASN
1	D	226	GLN
1	D	263	HIS
1	D	264	GLN
2	E	2	GLN
2	E	29	GLN
2	E	84	HIS
4	G	34	GLN
4	G	70	ASN
4	G	83	ASN
4	G	90	ASN
4	G	96	ASN
4	H	3	GLN
4	H	41	GLN
4	H	61	ASN
4	I	34	GLN
4	K	3	GLN
4	K	60	HIS
4	K	90	ASN
4	K	120	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

4 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	NAG	H	130	4	14,14,15	2.74	5 (35%)	17,19,21	2.19	4 (23%)
5	NAG	I	130	4	14,14,15	1.62	2 (14%)	17,19,21	1.03	1 (5%)
5	NAG	K	130	4	14,14,15	2.69	4 (28%)	17,19,21	1.48	2 (11%)
5	NAG	G	130	4	14,14,15	3.02	3 (21%)	17,19,21	2.06	3 (17%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	H	130	4	-	0/6/23/26	0/1/1/1
5	NAG	I	130	4	1/1/5/7	0/6/23/26	0/1/1/1
5	NAG	K	130	4	-	0/6/23/26	0/1/1/1
5	NAG	G	130	4	1/1/5/7	0/6/23/26	0/1/1/1

All (14) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	G	130	NAG	C1-C2	10.30	1.67	1.52
5	K	130	NAG	C1-C2	7.68	1.63	1.52
5	H	130	NAG	C1-C2	7.42	1.63	1.52
5	I	130	NAG	C1-C2	4.89	1.59	1.52
5	H	130	NAG	O5-C5	-4.51	1.34	1.43
5	K	130	NAG	O5-C1	-4.21	1.37	1.43
5	K	130	NAG	O5-C5	-3.81	1.35	1.43
5	H	130	NAG	C3-C2	3.17	1.59	1.52
5	H	130	NAG	O5-C1	-3.11	1.38	1.43
5	G	130	NAG	O5-C1	-2.98	1.39	1.43
5	G	130	NAG	C3-C2	2.68	1.58	1.52
5	I	130	NAG	C3-C2	2.53	1.57	1.52
5	H	130	NAG	C4-C5	-2.06	1.48	1.53
5	K	130	NAG	C4-C5	-2.02	1.48	1.53

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	G	130	NAG	C1-C2-N2	5.99	120.72	110.49
5	H	130	NAG	C1-O5-C5	5.96	120.26	112.19
5	G	130	NAG	O5-C1-C2	-4.31	104.48	111.29
5	H	130	NAG	O5-C1-C2	-3.89	105.15	111.29
5	K	130	NAG	O5-C1-C2	-3.67	105.50	111.29
5	H	130	NAG	O5-C5-C6	-3.63	101.51	107.20
5	K	130	NAG	C1-C2-N2	3.04	115.69	110.49
5	I	130	NAG	C1-C2-N2	2.88	115.41	110.49
5	H	130	NAG	C1-C2-N2	2.63	114.99	110.49
5	G	130	NAG	C1-O5-C5	-2.61	108.66	112.19

All (2) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
5	G	130	NAG	C1
5	I	130	NAG	C1

There are no torsion outliers.

There are no ring outliers.

4 monomers are involved in 28 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	H	130	NAG	6	0
5	I	130	NAG	3	0
5	K	130	NAG	3	6
5	G	130	NAG	10	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	274/274 (100%)	-0.10	1 (0%) 92 91	7, 28, 47, 61	0
1	D	274/274 (100%)	-0.12	4 (1%) 73 68	10, 28, 50, 72	0
2	B	99/99 (100%)	-0.21	1 (1%) 82 77	7, 27, 42, 60	0
2	E	99/99 (100%)	-0.33	0 100 100	9, 26, 48, 59	0
3	C	8/8 (100%)	0.11	0 100 100	21, 28, 38, 44	0
3	F	8/8 (100%)	-0.04	0 100 100	23, 29, 32, 35	0
4	G	122/129 (94%)	0.97	20 (16%) 1 1	23, 57, 83, 94	0
4	H	125/129 (96%)	0.55	8 (6%) 19 12	17, 48, 81, 89	0
4	I	122/129 (94%)	0.67	9 (7%) 14 8	27, 46, 73, 96	0
4	K	125/129 (96%)	0.33	9 (7%) 15 8	15, 39, 72, 91	0
All	All	1256/1278 (98%)	0.16	52 (4%) 37 27	7, 33, 70, 96	0

All (52) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
4	I	123	SER	7.0
4	K	124	SER	6.7
4	H	125	ALA	6.0
4	G	70	ASN	5.4
4	H	1	LYS	5.2
4	H	123	SER	5.2
4	G	4	ALA	5.0
4	G	2	PRO	4.6
4	H	2	PRO	4.5
4	G	3	GLN	4.5
4	H	18	LEU	4.3
4	G	71	SER	4.3
4	K	70	ASN	4.3

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Mol	Chain	Res	Type	RSRZ
4	I	124	SER	4.1
4	G	82	ASN	4.1
4	I	71	SER	4.1
4	K	123	SER	4.0
4	H	124	SER	3.9
4	H	122	VAL	3.8
4	K	71	SER	3.7
4	G	83	ASN	3.5
2	B	2	GLN	3.5
4	K	125	ALA	3.5
4	I	125	ALA	3.4
1	D	108	ARG	3.3
4	I	121	LYS	3.3
4	G	29	LEU	3.2
1	D	105	SER	3.2
4	G	122	VAL	3.2
4	I	72	SER	3.2
4	G	44	SER	3.2
4	G	1	LYS	3.0
1	D	106	ASP	3.0
4	K	1	LYS	2.9
4	I	70	ASN	2.9
4	I	67	GLU	2.8
4	G	67	GLU	2.6
1	A	17	LEU	2.6
4	G	10	PHE	2.5
1	D	107	GLY	2.5
4	H	17	GLU	2.5
4	G	72	SER	2.4
4	I	120	GLN	2.3
4	G	93	SER	2.2
4	G	43	SER	2.2
4	K	47	LEU	2.2
4	G	5	PRO	2.1
4	G	46	LYS	2.1
4	G	121	LYS	2.1
4	K	68	LYS	2.1
4	G	91	LYS	2.0
4	K	82	ASN	2.0

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
5	NAG	G	130	14/15	0.53	0.48	100,100,100,100	0
5	NAG	I	130	14/15	0.65	0.51	100,100,100,100	0
5	NAG	H	130	14/15	0.67	0.36	100,100,100,100	0
5	NAG	K	130	14/15	0.76	0.27	95,99,100,100	0

6.5 Other polymers [i](#)

There are no such residues in this entry.