



Full wwPDB X-ray Structure Validation Report ⓘ

Jan 19, 2026 – 12:23 pm GMT

PDB ID : 9S9G / pdb_00009s9g
Title : S. islandicus CdvA filament (X-ray)
Authors : Salzer, R.; Lowe, J.; Bellini, D.
Deposited on : 2025-08-06
Resolution : 2.85 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	:	4-5-2 with Phenix2.0
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.47

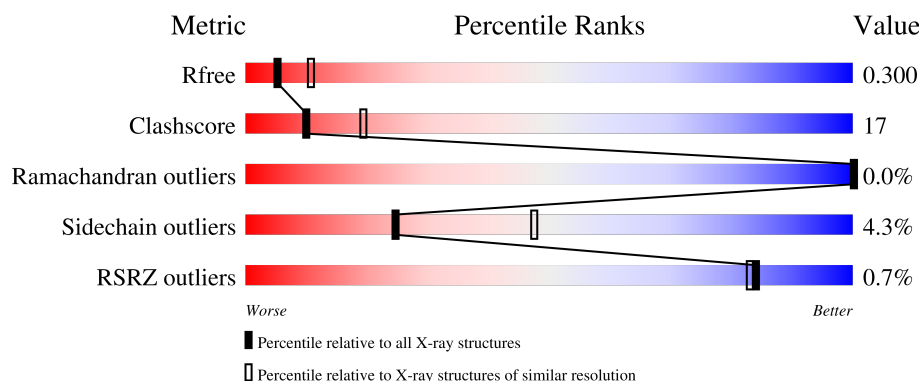
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.85 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}	164625	1268 (2.88-2.84)
Clashscore	180529	1351 (2.88-2.84)
Ramachandran outliers	177936	1318 (2.88-2.84)
Sidechain outliers	177891	1319 (2.88-2.84)
RSRZ outliers	164620	1269 (2.88-2.84)

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	238	% 59% 21% • 18%
1	B	238	51% 28% • 18%
1	C	238	51% 28% • 18%
1	D	238	% 55% 26% • 18%
1	E	238	% 52% 29% • 18%

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Mol	Chain	Length	Quality of chain
1	F	238	% 51% 29% • 18%
1	G	238	% 50% 30% • 18%
1	H	238	53% 27% • 18%
1	I	238	50% 29% • 19%
1	J	238	% 52% 26% • 19%
1	K	238	51% 28% • 19%
1	L	238	48% 31% • 19%
1	M	238	47% 30% • 20%
1	N	238	% 54% 27% • 19%

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 21978 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.

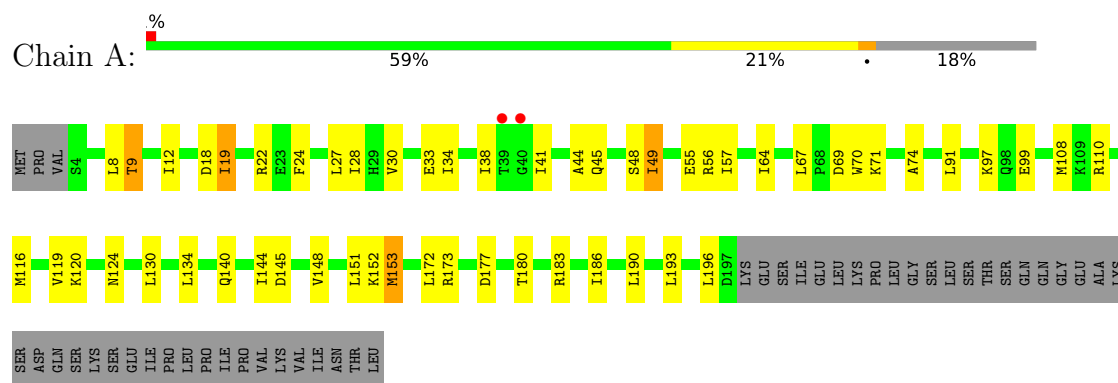
- Molecule 1 is a protein called Cell division protein CdvA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	194	Total	C	N	O	S	0	0	0
			1573	990	268	309	6			
1	B	194	Total	C	N	O	S	0	0	0
			1572	991	268	307	6			
1	C	195	Total	C	N	O	S	0	0	0
			1580	995	269	310	6			
1	D	195	Total	C	N	O	S	0	0	0
			1580	995	269	310	6			
1	E	194	Total	C	N	O	S	0	0	0
			1573	990	268	309	6			
1	F	196	Total	C	N	O	S	0	0	0
			1587	1000	270	311	6			
1	G	195	Total	C	N	O	S	0	0	0
			1580	995	269	310	6			
1	H	194	Total	C	N	O	S	0	0	0
			1572	991	268	307	6			
1	I	193	Total	C	N	O	S	0	0	0
			1565	986	267	306	6			
1	J	193	Total	C	N	O	S	0	0	0
			1565	986	267	306	6			
1	K	193	Total	C	N	O	S	0	0	0
			1565	986	267	306	6			
1	L	192	Total	C	N	O	S	0	0	0
			1558	982	266	304	6			
1	M	190	Total	C	N	O	S	0	0	0
			1543	973	264	300	6			
1	N	193	Total	C	N	O	S	0	0	0
			1565	986	267	306	6			

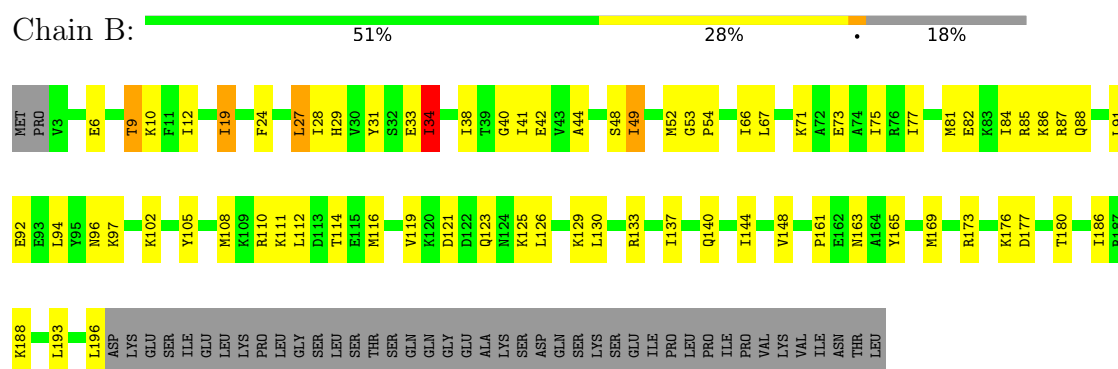
3 Residue-property plots [i](#)

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.

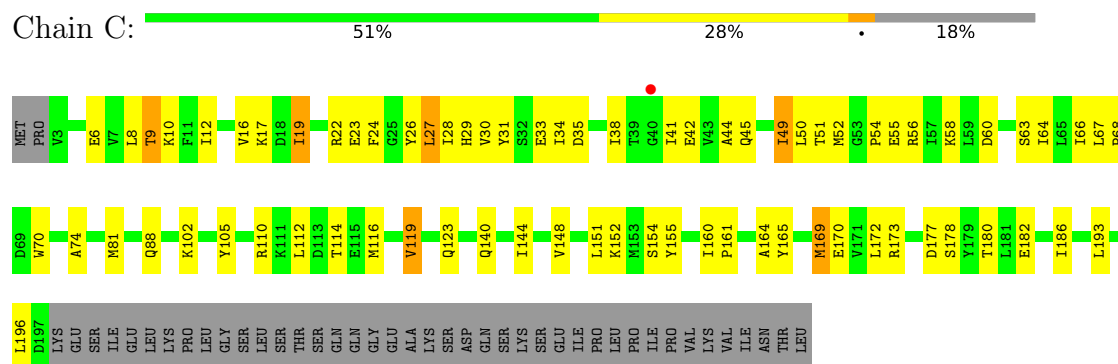
• Molecule 1: Cell division protein CdvA



• Molecule 1: Cell division protein CdvA



• Molecule 1: Cell division protein CdvA



Chain D:

Chain E:

Chain F:

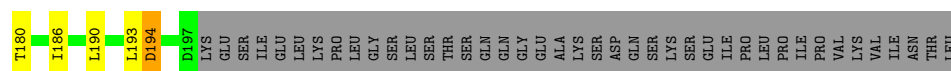
Amino Acid	Frequency (%)
Met	18
P2	51
L8	29
T9	29
I12	51
I19	29
E23	29
L27	51
H28	29
H29	29
V30	51
Y31	51
S32	29
E33	29
I34	29
I38	29
T39	29
G40	51
I41	29
E42	29
V43	29
A44	29
G45	29
G46	29
M52	29
G53	29
P54	29
E55	29
R56	29
I57	29
K58	29
L67	29
W70	29
I77	51
M81	29
E82	29
K83	29
I84	29
K85	29
K86	29
R87	29
Q88	29
E93	29
L94	29
K97	29
G98	29
E99	29
I102	51
D106	29
D107	29
K110	29
R111	29
L112	29
M116	29
V119	29
Q123	29
SER	29
N124	29
K127	29
L130	29
K131	29
L134	29
N135	29
E138	29
ASP	29
D139	29
Q140	29
GLN	29
SER	29
I144	29
SER	29
V148	29
GLU	29
ILE	29
K152	29
M153	29
PRO	29
ILE	29
I156	29
S157	29
S158	29
E159	29
I160	29
VAL	29
ILE	29
G167	29
ASN	29
S168	29
THR	29
M169	29
E170	29
V171	29
K176	29
D177	29
S178	29
I179	29
T180	29
R183	29
I186	29
R187	29
L193	29
R194	29
R192	29
L193	29
D197	29
LYS	29
GLU	29
SER	29
ILE	29
GLU	29
LEU	29
LYS	29
PRO	29
LEU	29
GLY	29
SER	29
SER	29
LEU	29
SER	29
THR	29
SER	29
GLN	29
GLN	29
GLU	29
GLU	29
ALA	29
LYS	29
LYS	29
SER	29
ASP	29
GLN	29
SER	29
LYS	29
SER	29
GLU	29
ILE	29
ASN	29
THR	29
LEU	29

Chain G:

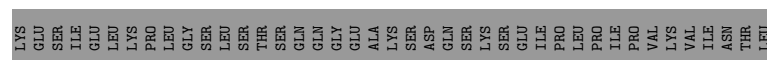
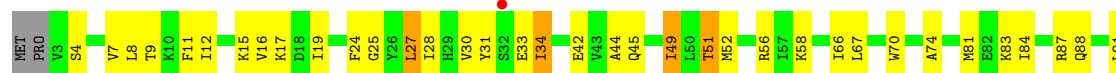
50% 30% 18%

Bar chart showing the distribution of Chain G across various categories. The categories are listed on the x-axis, and the corresponding values are shown on the y-axis. The categories are grouped into three main sections: MET, PRO, and V3. The values are represented by colored bars (grey, yellow, orange, green, red) and their corresponding percentages are shown on the right side of the chart.

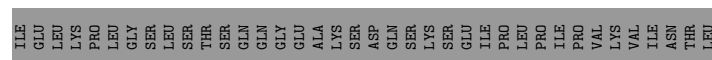
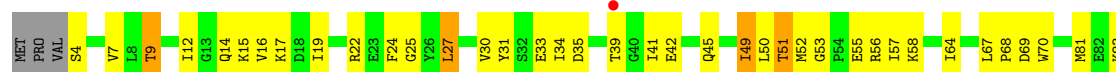
Category	Value	Percentage
MET	1	1%
PRO	1	1%
V3	1	1%
T9	1	1%
I12	1	1%
K16	1	1%
V15	1	1%
I19	1	1%
R22	1	1%
E23	1	1%
F24	1	1%
L27	1	1%
I28	1	1%
H29	1	1%
V30	1	1%
E33	1	1%
I34	1	1%
T38	1	1%
I13	1	1%
T39	1	1%
G40	1	1%
I41	1	1%
E42	1	1%
V43	1	1%
A44	1	1%
Q45	1	1%
G46	1	1%
S47	1	1%
S48	1	1%
I49	1	1%
L50	1	1%
T51	1	1%
M52	1	1%
R56	1	1%
I57	1	1%
K58	1	1%
L59	1	1%
I64	1	1%
L65	1	1%
I66	1	1%
L67	1	1%
P68	1	1%
D69	1	1%
W70	1	1%
K71	1	1%
A74	1	1%
I75	1	1%
R76	1	1%
I80	1	1%
M81	1	1%
E82	1	1%
K83	1	1%
I84	1	1%
R85	1	1%
K86	1	1%
R87	1	1%
Q88	1	1%
L94	1	1%
Y95	1	1%
E99	1	1%
I100	1	1%
P101	1	1%
K102	1	1%
S103	1	1%
D104	1	1%
Y105	1	1%
D106	1	1%
D107	1	1%
M108	1	1%
L112	1	1%
D113	1	1%
I114	1	1%
E115	1	1%
M116	1	1%
L117	1	1%
K118	1	1%
V119	1	1%
Q123	1	1%
K127	1	1%
L130	1	1%
I137	1	1%
Q140	1	1%
I144	1	1%
L151	1	1%
I156	1	1%
S157	1	1%
S158	1	1%
Y165	1	1%
M169	1	1%
L172	1	1%
R173	1	1%
D177	1	1%
S178	1	1%



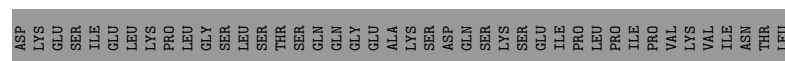
• Molecule 1: Cell division protein CdvA



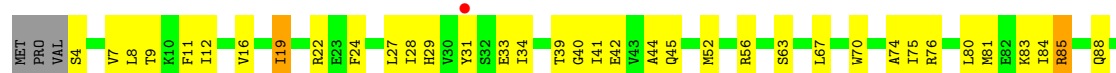
• Molecule 1: Cell division protein CdvA

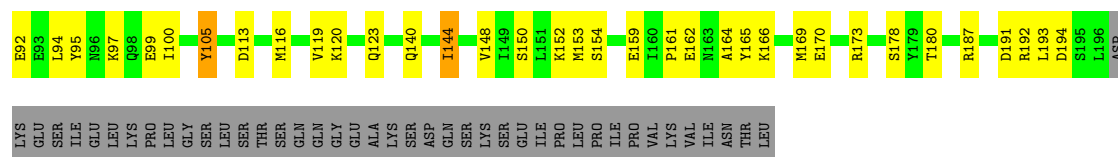


• Molecule 1: Cell division protein CdvA



• Molecule 1: Cell division protein CdvA

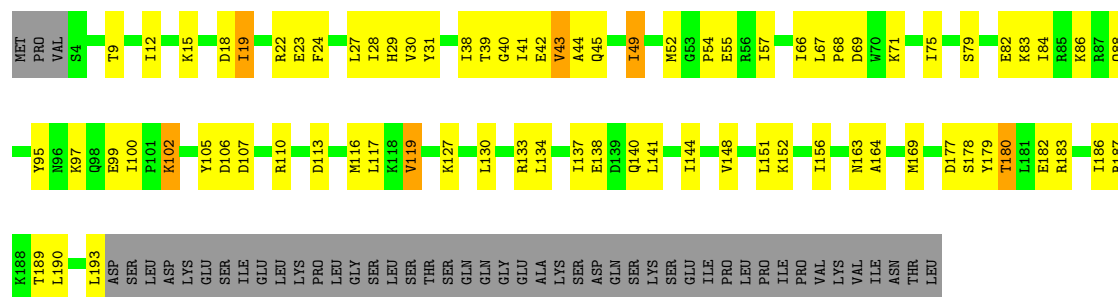




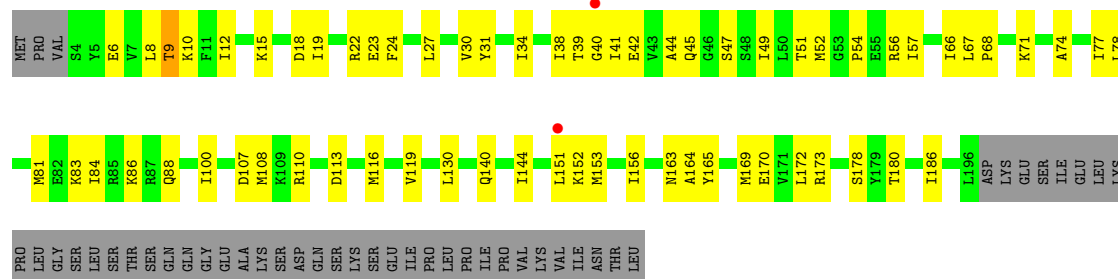
• Molecule 1: Cell division protein CdvA



• Molecule 1: Cell division protein CdvA



• Molecule 1: Cell division protein CdvA



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	71.03Å 102.72Å 328.55Å 90.00° 92.35° 90.00°	Depositor
Resolution (Å)	52.62 – 2.85 52.62 – 2.85	Depositor EDS
% Data completeness (in resolution range)	33.2 (52.62-2.85) 33.2 (52.62-2.85)	Depositor EDS
R_{merge}	1.67	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.49 (at 2.86Å)	Xtriage
Refinement program	PHENIX (1.17.1_3660)	Depositor
R, R_{free}	0.226 , 0.298 0.228 , 0.300	Depositor DCC
R_{free} test set	1872 reflections (1.69%)	wwPDB-VP
Wilson B-factor (Å ²)	83.4	Xtriage
Anisotropy	0.061	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.29 , 47.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.52$, $\langle L^2 \rangle = 0.36$	Xtriage
Estimated twinning fraction	0.000 for h,-k,-l	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	21978	wwPDB-VP
Average B, all atoms (Å ²)	68.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 43.56 % 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 1.7337e-04. 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

5.1 Standard geometry

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	A	0.51	0/1591	0.78	0/2129
1	B	0.46	0/1590	0.76	1/2128 (0.0%)
1	C	0.50	0/1598	0.76	0/2139
1	D	0.48	0/1598	0.75	1/2139 (0.0%)
1	E	0.51	0/1591	0.79	0/2129
1	F	0.49	0/1606	0.79	0/2150
1	G	0.53	0/1598	0.82	0/2139
1	H	0.45	0/1590	0.74	0/2128
1	I	0.46	0/1583	0.77	0/2118
1	J	0.53	1/1583 (0.1%)	0.81	3/2118 (0.1%)
1	K	0.53	0/1583	0.80	0/2118
1	L	0.47	0/1576	0.74	0/2109
1	M	0.49	0/1561	0.80	0/2088
1	N	0.52	0/1583	0.75	0/2118
All	All	0.50	1/22231 (0.0%)	0.78	5/29750 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	J	46	GLY	C-O	-5.84	1.21	1.24

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	J	52	MET	CB-CG-SD	-8.04	88.59	112.70
1	J	56	ARG	NE-CZ-NH1	-6.05	115.45	121.50
1	B	34	ILE	N-CA-C	5.39	116.16	110.72
1	J	52	MET	CG-SD-CE	-5.07	89.74	100.90
1	D	126	LEU	CB-CG-CD1	-5.03	95.61	110.70

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1573	0	1619	44	1
1	B	1572	0	1624	65	0
1	C	1580	0	1628	56	0
1	D	1580	0	1628	53	0
1	E	1573	0	1619	57	0
1	F	1587	0	1636	70	0
1	G	1580	0	1628	63	0
1	H	1572	0	1624	51	0
1	I	1565	0	1615	58	0
1	J	1565	0	1615	56	0
1	K	1565	0	1615	54	0
1	L	1558	0	1608	58	1
1	M	1543	0	1595	63	0
1	N	1565	0	1615	48	0
All	All	21978	0	22669	765	1

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 17.

All (765) 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:19:ILE:HD11	1:A:67:LEU:HA	1.49	0.94
1:H:19:ILE:HD11	1:H:67:LEU:HA	1.50	0.94
1:G:57:ILE:HD12	1:G:64:ILE:HD11	1.50	0.93
1:I:19:ILE:HD11	1:I:67:LEU:HA	1.51	0.92
1:K:28:ILE:HD11	1:K:44:ALA:HB2	1.52	0.91
1:D:88:GLN:HG3	1:D:112:LEU:HD13	1.51	0.90
1:M:84:ILE:HG21	1:M:116:MET:HB2	1.55	0.89
1:K:19:ILE:HD11	1:K:67:LEU:HA	1.53	0.89
1:C:34:ILE:HA	1:K:83:LYS:HE2	1.53	0.88
1:J:19:ILE:HD11	1:J:67:LEU:HA	1.53	0.88
1:D:107:ASP:OD1	1:D:110:ARG:NH1	2.06	0.87
1:A:56:ARG:HH12	1:A:69:ASP:HB3	1.38	0.86
1:C:60:ASP:HB3	1:C:63:SER:HB3	1.57	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:19:ILE:HD11	1:E:67:LEU:HA	1.60	0.84
1:G:28:ILE:HD11	1:G:44:ALA:HB2	1.60	0.83
1:C:49:ILE:HD11	1:G:144:ILE:HG12	1.59	0.83
1:D:9:THR:HA	1:D:12:ILE:HG13	1.61	0.83
1:D:28:ILE:HD11	1:D:44:ALA:HB2	1.59	0.83
1:K:88:GLN:NE2	1:K:113:ASP:OD1	2.13	0.82
1:H:12:ILE:HG22	1:H:27:LEU:HD11	1.61	0.82
1:J:85:ARG:HD3	1:J:89:ARG:HH11	1.45	0.81
1:F:12:ILE:HD11	1:F:29:HIS:HA	1.63	0.81
1:I:88:GLN:HG3	1:I:112:LEU:HD23	1.63	0.81
1:I:33:GLU:HG2	1:I:34:ILE:H	1.45	0.81
1:A:33:GLU:HG2	1:A:34:ILE:H	1.44	0.80
1:H:33:GLU:HG3	1:H:34:ILE:H	1.46	0.80
1:A:172:LEU:HD21	1:B:28:ILE:HD13	1.62	0.80
1:F:183:ARG:HG2	1:F:187:ARG:HE	1.46	0.79
1:N:19:ILE:HD11	1:N:67:LEU:HA	1.63	0.79
1:M:134:LEU:HD13	1:M:186:ILE:HG21	1.63	0.79
1:I:15:LYS:HB3	1:I:17:LYS:HZ3	1.48	0.79
1:F:52:MET:HE3	1:F:56:ARG:HB2	1.63	0.78
1:G:58:LYS:HB2	1:G:67:LEU:HD11	1.65	0.78
1:H:91:LEU:HD11	1:H:108:MET:HE3	1.63	0.78
1:F:107:ASP:OD1	1:F:110:ARG:NH2	2.17	0.78
1:B:28:ILE:HD11	1:B:44:ALA:HB2	1.66	0.77
1:E:85:ARG:HE	1:E:116:MET:HE1	1.49	0.77
1:H:123:GLN:HG3	1:H:193:LEU:HD21	1.66	0.77
1:E:88:GLN:HG3	1:E:112:LEU:HD13	1.67	0.77
1:E:58:LYS:HB2	1:E:67:LEU:HD11	1.67	0.76
1:I:12:ILE:HG22	1:I:27:LEU:HD11	1.64	0.76
1:C:19:ILE:HD11	1:C:67:LEU:HA	1.67	0.76
1:N:116:MET:HA	1:N:119:VAL:HG12	1.67	0.76
1:F:58:LYS:HB2	1:F:67:LEU:HD11	1.66	0.76
1:J:58:LYS:HB2	1:J:67:LEU:HD11	1.67	0.76
1:H:81:MET:HE2	1:H:119:VAL:HG23	1.68	0.76
1:M:140:GLN:O	1:M:144:ILE:HG13	1.87	0.75
1:E:126:LEU:HD23	1:E:129:LYS:HD3	1.67	0.75
1:B:19:ILE:HD11	1:B:67:LEU:HA	1.69	0.75
1:C:33:GLU:HG3	1:C:34:ILE:H	1.52	0.74
1:B:33:GLU:HG3	1:B:34:ILE:H	1.52	0.73
1:C:24:PHE:CE2	1:C:66:ILE:HG21	2.23	0.73
1:K:12:ILE:HD11	1:K:29:HIS:HA	1.70	0.73
1:A:48:SER:HA	1:B:140:GLN:HE22	1.54	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:N:140:GLN:O	1:N:144:ILE:HG13	1.88	0.72
1:H:31:TYR:HE1	1:H:42:GLU:HB2	1.53	0.72
1:N:52:MET:HE3	1:N:56:ARG:HB2	1.70	0.72
1:K:148:VAL:HG12	1:K:152:LYS:HE3	1.72	0.72
1:M:19:ILE:HD11	1:M:67:LEU:HA	1.70	0.72
1:G:33:GLU:HG2	1:G:34:ILE:H	1.55	0.72
1:H:84:ILE:HG21	1:H:116:MET:HB2	1.71	0.71
1:D:19:ILE:HD11	1:D:67:LEU:HA	1.72	0.71
1:B:19:ILE:HD11	1:B:67:LEU:HD23	1.72	0.71
1:E:9:THR:HA	1:E:12:ILE:HG13	1.73	0.71
1:A:130:LEU:HD11	1:A:186:ILE:HG23	1.73	0.70
1:B:123:GLN:HE22	1:B:196:LEU:HD21	1.56	0.70
1:B:102:LYS:HA	1:B:105:TYR:HB3	1.73	0.70
1:H:140:GLN:O	1:H:144:ILE:HG13	1.91	0.70
1:F:83:LYS:HG3	1:F:87:ARG:HH12	1.56	0.70
1:H:28:ILE:HD11	1:H:44:ALA:HB2	1.72	0.70
1:M:130:LEU:HD23	1:M:190:LEU:HD13	1.71	0.70
1:I:50:LEU:HD11	1:I:52:MET:HE3	1.74	0.70
1:H:58:LYS:HB2	1:H:67:LEU:HD11	1.72	0.70
1:F:102:LYS:HE2	1:F:106:ASP:OD2	1.92	0.69
1:E:84:ILE:HG21	1:E:116:MET:HB2	1.74	0.69
1:F:28:ILE:HD11	1:F:44:ALA:HB2	1.74	0.69
1:M:12:ILE:HD11	1:M:30:VAL:HG12	1.75	0.69
1:F:152:LYS:NZ	1:I:99:GLU:OE1	2.22	0.69
1:I:83:LYS:HG2	1:I:86:LYS:HE2	1.72	0.69
1:B:24:PHE:CE2	1:B:66:ILE:HG21	2.27	0.69
1:A:140:GLN:O	1:A:144:ILE:HG13	1.92	0.68
1:E:100:ILE:HD12	1:E:105:TYR:HB2	1.75	0.68
1:L:33:GLU:HG2	1:L:34:ILE:H	1.56	0.68
1:B:12:ILE:HG12	1:B:27:LEU:HD11	1.75	0.68
1:K:81:MET:HE1	1:K:120:LYS:HE2	1.74	0.68
1:G:84:ILE:HG21	1:G:116:MET:HB2	1.75	0.68
1:F:88:GLN:HG3	1:F:112:LEU:HD23	1.74	0.68
1:D:191:ASP:OD1	1:D:192:ARG:N	2.26	0.68
1:L:119:VAL:O	1:L:123:GLN:N	2.23	0.68
1:F:83:LYS:HA	1:F:86:LYS:HZ2	1.59	0.67
1:D:81:MET:HE2	1:D:119:VAL:HG23	1.74	0.67
1:B:116:MET:HA	1:B:119:VAL:HG12	1.76	0.67
1:J:91:LEU:HD11	1:J:108:MET:HE3	1.75	0.67
1:J:88:GLN:HG3	1:J:112:LEU:HD13	1.77	0.67
1:G:9:THR:HA	1:G:12:ILE:HG13	1.77	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:123:GLN:HG3	1:C:193:LEU:HD11	1.77	0.67
1:A:56:ARG:HG2	1:A:56:ARG:O	1.94	0.66
1:F:94:LEU:HA	1:F:97:LYS:HD3	1.75	0.66
1:E:56:ARG:HH12	1:E:69:ASP:HB3	1.61	0.66
1:G:127:LYS:HE3	1:G:190:LEU:HD11	1.78	0.66
1:M:41:ILE:HG23	1:M:52:MET:HG3	1.79	0.65
1:H:88:GLN:HG3	1:H:112:LEU:HD13	1.77	0.65
1:L:12:ILE:HD11	1:L:29:HIS:HA	1.78	0.65
1:D:126:LEU:HA	1:D:129:LYS:HE3	1.79	0.65
1:F:124:ASN:HA	1:F:127:LYS:HD3	1.78	0.65
1:A:24:PHE:CE1	1:A:45:GLN:HG2	2.32	0.65
1:C:28:ILE:HD11	1:C:44:ALA:HB2	1.79	0.65
1:I:191:ASP:OD1	1:I:192:ARG:N	2.30	0.65
1:N:170:GLU:OE2	1:N:173:ARG:NH2	2.30	0.65
1:A:19:ILE:HD12	1:A:19:ILE:H	1.62	0.64
1:L:56:ARG:HH12	1:L:69:ASP:HB3	1.63	0.64
1:C:165:TYR:CE1	1:C:169:MET:HE2	2.32	0.64
1:F:19:ILE:HD11	1:F:67:LEU:HA	1.79	0.64
1:J:84:ILE:HG21	1:J:116:MET:HB2	1.79	0.64
1:D:40:GLY:HA2	1:D:54:PRO:HD3	1.80	0.63
1:H:56:ARG:NE	1:H:67:LEU:O	2.23	0.63
1:J:93:GLU:HG2	1:J:97:LYS:HE2	1.79	0.63
1:C:12:ILE:HA	1:C:27:LEU:HG	1.81	0.63
1:D:8:LEU:O	1:D:11:PHE:N	2.26	0.63
1:H:24:PHE:CE1	1:H:45:GLN:HG2	2.33	0.63
1:J:137:ILE:HG23	1:J:179:TYR:CD1	2.34	0.63
1:K:123:GLN:HG3	1:K:193:LEU:HD11	1.79	0.63
1:M:183:ARG:HH21	1:M:187:ARG:HH12	1.45	0.63
1:C:28:ILE:HD13	1:G:172:LEU:HD21	1.81	0.62
1:E:106:ASP:OD1	1:E:107:ASP:N	2.32	0.62
1:L:56:ARG:HG2	1:L:66:ILE:HG23	1.81	0.62
1:M:40:GLY:HA2	1:M:54:PRO:HD3	1.80	0.62
1:K:33:GLU:HG3	1:K:34:ILE:H	1.63	0.62
1:N:8:LEU:HB3	1:N:30:VAL:HG21	1.81	0.62
1:J:12:ILE:HG12	1:J:27:LEU:HD11	1.81	0.62
1:I:81:MET:HE2	1:I:119:VAL:HG23	1.81	0.61
1:M:100:ILE:HD12	1:M:105:TYR:HB2	1.80	0.61
1:N:56:ARG:HH11	1:N:68:PRO:HA	1.64	0.61
1:A:97:LYS:HG3	1:A:99:GLU:HG3	1.83	0.61
1:G:24:PHE:CE2	1:G:45:GLN:HG2	2.34	0.61
1:I:15:LYS:HB3	1:I:17:LYS:NZ	2.16	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:130:LEU:HD23	1:A:190:LEU:HD13	1.82	0.61
1:B:91:LEU:HD11	1:B:108:MET:HE3	1.82	0.61
1:K:119:VAL:O	1:K:123:GLN:N	2.29	0.61
1:C:16:VAL:HG12	1:C:64:ILE:HG23	1.82	0.61
1:D:33:GLU:HG3	1:D:34:ILE:H	1.66	0.61
1:F:83:LYS:HE3	1:F:87:ARG:NH1	2.16	0.61
1:I:81:MET:O	1:I:85:ARG:HG2	2.00	0.61
1:C:140:GLN:O	1:C:144:ILE:HG13	2.01	0.60
1:G:3:VAL:HG13	1:G:59:LEU:HD11	1.81	0.60
1:M:88:GLN:NE2	1:M:113:ASP:OD1	2.34	0.60
1:H:144:ILE:O	1:H:148:VAL:HG13	2.02	0.60
1:N:84:ILE:HG21	1:N:116:MET:HB2	1.83	0.60
1:I:16:VAL:HG22	1:I:25:GLY:O	2.01	0.60
1:M:83:LYS:HG2	1:M:86:LYS:HE2	1.84	0.60
1:A:91:LEU:HD11	1:A:108:MET:HE3	1.84	0.60
1:I:119:VAL:O	1:I:123:GLN:N	2.30	0.60
1:E:138:GLU:OE2	1:E:183:ARG:HD2	2.02	0.60
1:J:44:ALA:HA	1:J:49:ILE:HG22	1.84	0.60
1:J:122:ASP:HA	1:J:125:LYS:HD2	1.83	0.60
1:M:106:ASP:OD1	1:M:107:ASP:N	2.34	0.60
1:I:144:ILE:O	1:I:148:VAL:HG13	2.02	0.60
1:F:93:GLU:O	1:F:97:LYS:HG3	2.01	0.59
1:I:121:ASP:O	1:I:125:LYS:HG2	2.02	0.59
1:J:52:MET:CG	1:J:56:ARG:HD3	2.32	0.59
1:J:43:VAL:HG11	1:J:52:MET:SD	2.42	0.59
1:J:191:ASP:OD1	1:J:192:ARG:N	2.35	0.59
1:B:33:GLU:CG	1:B:34:ILE:H	2.14	0.59
1:D:148:VAL:HG12	1:D:172:LEU:HD13	1.85	0.59
1:H:133:ARG:O	1:H:137:ILE:HG13	2.02	0.59
1:C:19:ILE:HD11	1:C:67:LEU:HD23	1.84	0.59
1:F:33:GLU:HG2	1:F:34:ILE:H	1.68	0.59
1:B:87:ARG:HG2	1:B:112:LEU:HD21	1.84	0.59
1:F:97:LYS:HE2	1:F:99:GLU:OE2	2.03	0.59
1:I:12:ILE:HA	1:I:27:LEU:HG	1.83	0.59
1:L:87:ARG:HG2	1:L:112:LEU:HD11	1.84	0.59
1:J:44:ALA:CB	1:J:49:ILE:HG22	2.32	0.59
1:H:33:GLU:CG	1:H:34:ILE:H	2.14	0.58
1:M:49:ILE:HG13	1:M:49:ILE:O	2.01	0.58
1:G:94:LEU:HG	1:G:100:ILE:HB	1.84	0.58
1:G:119:VAL:O	1:G:123:GLN:N	2.23	0.58
1:H:102:LYS:HE2	1:H:106:ASP:OD2	2.03	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:33:GLU:OE2	1:I:111:LYS:NZ	2.36	0.58
1:E:70:TRP:O	1:E:74:ALA:N	2.33	0.58
1:F:106:ASP:O	1:F:110:ARG:HG3	2.03	0.58
1:K:116:MET:HA	1:K:119:VAL:HG22	1.84	0.58
1:K:191:ASP:OD1	1:K:192:ARG:N	2.36	0.58
1:M:152:LYS:O	1:M:156:ILE:N	2.30	0.58
1:B:81:MET:HE2	1:B:119:VAL:HG13	1.86	0.58
1:C:172:LEU:HD21	1:G:28:ILE:HD13	1.85	0.58
1:G:83:LYS:HA	1:G:86:LYS:HE2	1.86	0.58
1:F:153:MET:HE1	1:I:87:ARG:HE	1.68	0.58
1:A:8:LEU:HB3	1:A:30:VAL:HG21	1.86	0.58
1:E:141:LEU:HD23	1:E:144:ILE:HD11	1.86	0.58
1:E:120:LYS:HE2	1:E:124:ASN:ND2	2.19	0.57
1:A:116:MET:HA	1:A:119:VAL:HG12	1.85	0.57
1:E:12:ILE:HD11	1:E:30:VAL:HG23	1.86	0.57
1:J:89:ARG:NH1	1:K:194:ASP:HB3	2.19	0.57
1:N:9:THR:HA	1:N:12:ILE:HG13	1.85	0.57
1:A:56:ARG:HH22	1:A:69:ASP:N	2.02	0.57
1:J:148:VAL:HG12	1:J:172:LEU:HD13	1.85	0.57
1:L:141:LEU:HD23	1:L:144:ILE:HD11	1.85	0.57
1:K:140:GLN:O	1:K:144:ILE:HG13	2.04	0.57
1:K:162:GLU:OE1	1:K:166:LYS:NZ	2.24	0.57
1:L:12:ILE:HA	1:L:27:LEU:HD11	1.87	0.57
1:H:141:LEU:HD11	1:H:176:LYS:HG3	1.87	0.57
1:C:9:THR:HA	1:C:12:ILE:HG23	1.86	0.57
1:G:19:ILE:HD11	1:G:67:LEU:HA	1.87	0.57
1:L:137:ILE:O	1:L:141:LEU:N	2.33	0.57
1:N:153:MET:HA	1:N:156:ILE:HD12	1.86	0.57
1:C:110:ARG:O	1:C:114:THR:OG1	2.19	0.56
1:E:73:GLU:HB3	1:E:126:LEU:HD13	1.87	0.56
1:F:116:MET:HA	1:F:119:VAL:HG12	1.87	0.56
1:L:56:ARG:NH1	1:L:69:ASP:HB3	2.20	0.56
1:G:70:TRP:CE2	1:G:186:ILE:HD11	2.40	0.56
1:C:56:ARG:HH21	1:C:68:PRO:HA	1.69	0.56
1:F:82:GLU:OE2	1:F:192:ARG:NH1	2.39	0.56
1:M:41:ILE:HG23	1:M:52:MET:CG	2.35	0.56
1:M:152:LYS:C	1:M:156:ILE:HG12	2.31	0.56
1:A:56:ARG:HH12	1:A:69:ASP:CB	2.15	0.56
1:M:24:PHE:HE1	1:M:43:VAL:HG11	1.70	0.56
1:F:124:ASN:HD22	1:F:127:LYS:HD3	1.70	0.56
1:F:144:ILE:O	1:F:148:VAL:HG13	2.06	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:131:LYS:HG2	1:F:134:LEU:HD23	1.88	0.56
1:I:140:GLN:O	1:I:144:ILE:HG13	2.05	0.56
1:J:123:GLN:HG3	1:J:193:LEU:HD11	1.87	0.56
1:L:127:LYS:HG3	1:L:190:LEU:HD21	1.87	0.56
1:M:18:ASP:HB2	1:M:22:ARG:O	2.06	0.56
1:C:31:TYR:HE1	1:C:42:GLU:HB2	1.70	0.56
1:B:49:ILE:HG13	1:B:49:ILE:O	2.05	0.55
1:E:40:GLY:HA2	1:E:54:PRO:HD3	1.87	0.55
1:F:183:ARG:HG2	1:F:187:ARG:NE	2.18	0.55
1:F:191:ASP:OD1	1:F:192:ARG:N	2.40	0.55
1:A:70:TRP:O	1:A:74:ALA:N	2.31	0.55
1:H:15:LYS:NZ	1:H:17:LYS:HE3	2.21	0.55
1:I:49:ILE:O	1:I:49:ILE:HG13	2.04	0.55
1:F:83:LYS:HE3	1:F:87:ARG:HH12	1.71	0.55
1:N:83:LYS:HA	1:N:86:LYS:HG2	1.87	0.55
1:E:116:MET:HA	1:E:119:VAL:HG12	1.89	0.55
1:N:27:LEU:HD13	1:N:41:ILE:HD11	1.88	0.55
1:G:12:ILE:HD11	1:G:30:VAL:HG23	1.89	0.55
1:H:19:ILE:CD1	1:H:67:LEU:HA	2.32	0.55
1:I:42:GLU:OE1	1:I:51:THR:HG22	2.07	0.55
1:L:137:ILE:HG23	1:L:179:TYR:CD1	2.42	0.55
1:M:22:ARG:NH2	1:M:182:GLU:OE1	2.30	0.55
1:H:116:MET:HA	1:H:119:VAL:HG22	1.89	0.54
1:B:165:TYR:CZ	1:B:169:MET:HG3	2.43	0.54
1:L:52:MET:SD	1:L:56:ARG:HD2	2.47	0.54
1:G:106:ASP:OD1	1:G:107:ASP:N	2.39	0.54
1:B:12:ILE:HD13	1:B:29:HIS:HA	1.89	0.54
1:B:40:GLY:HA2	1:B:54:PRO:HD3	1.89	0.54
1:C:22:ARG:HD2	1:G:47:SER:OG	2.07	0.54
1:E:22:ARG:HH22	1:E:179:TYR:HA	1.73	0.54
1:H:119:VAL:O	1:H:123:GLN:N	2.35	0.54
1:M:151:LEU:HD23	1:M:169:MET:SD	2.47	0.54
1:B:88:GLN:HG3	1:B:112:LEU:HD23	1.90	0.54
1:H:83:LYS:HE3	1:H:87:ARG:NH1	2.23	0.54
1:M:22:ARG:HD2	1:N:47:SER:OG	2.06	0.54
1:H:4:SER:HB2	1:H:7:VAL:HG22	1.90	0.54
1:I:152:LYS:O	1:I:156:ILE:HG12	2.07	0.54
1:J:44:ALA:HB2	1:J:49:ILE:HG22	1.89	0.54
1:M:19:ILE:HD12	1:M:19:ILE:H	1.73	0.54
1:H:49:ILE:O	1:H:49:ILE:HG13	2.07	0.54
1:K:116:MET:HG3	1:K:116:MET:O	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:81:MET:HG2	1:C:119:VAL:HG21	1.89	0.53
1:L:19:ILE:HG12	1:L:66:ILE:O	2.08	0.53
1:B:41:ILE:HD11	1:B:54:PRO:HA	1.90	0.53
1:D:164:ALA:HB1	1:F:12:ILE:CG2	2.39	0.53
1:E:116:MET:O	1:E:116:MET:HG2	2.08	0.53
1:J:137:ILE:HG23	1:J:179:TYR:HD1	1.74	0.53
1:N:34:ILE:H	1:N:34:ILE:HD12	1.74	0.53
1:F:81:MET:HE3	1:F:116:MET:HE3	1.90	0.53
1:H:161:PRO:HG2	1:H:164:ALA:HB3	1.90	0.53
1:J:195:SER:HB3	1:K:85:ARG:NH2	2.24	0.53
1:D:106:ASP:O	1:D:110:ARG:HG3	2.07	0.53
1:J:70:TRP:CZ3	1:J:71:LYS:HG2	2.44	0.53
1:K:27:LEU:HD12	1:K:42:GLU:O	2.08	0.53
1:L:140:GLN:O	1:L:144:ILE:HG12	2.09	0.53
1:D:85:ARG:HH11	1:D:89:ARG:HH22	1.56	0.53
1:H:70:TRP:O	1:H:74:ALA:N	2.38	0.53
1:I:123:GLN:HG3	1:I:193:LEU:HD21	1.91	0.53
1:E:56:ARG:O	1:E:56:ARG:HG2	2.09	0.53
1:E:123:GLN:HG3	1:E:193:LEU:HD21	1.91	0.53
1:K:170:GLU:HG3	1:K:173:ARG:HH21	1.74	0.53
1:M:177:ASP:HA	1:M:180:THR:HB	1.91	0.53
1:D:85:ARG:HH11	1:D:89:ARG:NH2	2.07	0.53
1:F:183:ARG:O	1:F:187:ARG:HG3	2.09	0.53
1:I:9:THR:HA	1:I:12:ILE:HG23	1.91	0.53
1:A:130:LEU:CD1	1:A:186:ILE:HG23	2.39	0.52
1:G:130:LEU:HD23	1:G:190:LEU:HD13	1.91	0.52
1:L:11:PHE:O	1:L:27:LEU:HD21	2.09	0.52
1:M:134:LEU:HD13	1:M:186:ILE:CG2	2.38	0.52
1:D:122:ASP:HA	1:D:125:LYS:HE3	1.90	0.52
1:A:9:THR:HA	1:A:12:ILE:HG13	1.92	0.52
1:B:123:GLN:CD	1:B:193:LEU:HD11	2.35	0.52
1:C:144:ILE:HG12	1:G:49:ILE:HD11	1.91	0.52
1:D:80:LEU:HD22	1:I:34:ILE:HG22	1.91	0.52
1:E:102:LYS:HA	1:E:105:TYR:HB3	1.91	0.52
1:C:81:MET:HE3	1:C:196:LEU:HD13	1.90	0.52
1:D:151:LEU:HD23	1:D:169:MET:SD	2.50	0.52
1:H:31:TYR:CE1	1:H:42:GLU:HB2	2.39	0.52
1:H:123:GLN:CG	1:H:193:LEU:HD21	2.37	0.52
1:J:44:ALA:CA	1:J:49:ILE:HG22	2.39	0.52
1:M:97:LYS:HB3	1:M:99:GLU:HG3	1.90	0.52
1:D:88:GLN:CG	1:D:112:LEU:HD13	2.34	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:11:PHE:CE1	1:K:63:SER:HA	2.44	0.52
1:J:19:ILE:HD12	1:J:19:ILE:H	1.75	0.52
1:A:12:ILE:HD11	1:A:30:VAL:HG23	1.92	0.52
1:A:145:ASP:HA	1:A:148:VAL:HG22	1.92	0.52
1:D:123:GLN:HG3	1:D:193:LEU:HD21	1.92	0.52
1:M:116:MET:O	1:M:119:VAL:HG12	2.09	0.52
1:F:176:LYS:HE2	1:F:180:THR:HG21	1.92	0.51
1:G:94:LEU:HD12	1:G:99:GLU:HB2	1.91	0.51
1:L:49:ILE:HG13	1:L:49:ILE:O	2.08	0.51
1:B:6:GLU:O	1:B:10:LYS:HG3	2.10	0.51
1:B:33:GLU:OE2	1:B:34:ILE:HG13	2.10	0.51
1:H:92:GLU:OE2	1:H:105:TYR:OH	2.28	0.51
1:I:145:ASP:O	1:I:148:VAL:HG22	2.10	0.51
1:J:22:ARG:HG3	1:J:178:SER:OG	2.10	0.51
1:L:191:ASP:OD1	1:L:192:ARG:N	2.44	0.51
1:N:19:ILE:HD11	1:N:67:LEU:HD23	1.92	0.51
1:B:81:MET:O	1:B:85:ARG:HG2	2.10	0.51
1:B:82:GLU:HG3	1:B:86:LYS:NZ	2.25	0.51
1:J:52:MET:HG3	1:J:56:ARG:HH21	1.75	0.51
1:J:151:LEU:HD23	1:J:169:MET:HG2	1.91	0.51
1:C:29:HIS:HB3	1:C:42:GLU:HB3	1.92	0.51
1:M:71:LYS:O	1:M:75:ILE:HG23	2.09	0.51
1:F:83:LYS:HA	1:F:86:LYS:HG2	1.93	0.51
1:N:74:ALA:O	1:N:78:LEU:HD13	2.11	0.51
1:C:34:ILE:CA	1:K:83:LYS:HE2	2.32	0.51
1:B:71:LYS:O	1:B:75:ILE:HG22	2.11	0.51
1:H:148:VAL:HB	1:H:169:MET:HE1	1.91	0.51
1:B:9:THR:HA	1:B:12:ILE:HG13	1.92	0.51
1:B:173:ARG:HH11	1:B:176:LYS:HD3	1.76	0.51
1:G:27:LEU:HD13	1:G:41:ILE:HD11	1.92	0.51
1:E:45:GLN:O	1:E:45:GLN:HG2	2.11	0.51
1:H:33:GLU:OE2	1:H:34:ILE:HG13	2.11	0.51
1:J:120:LYS:NZ	1:J:196:LEU:HA	2.26	0.51
1:C:170:GLU:OE2	1:C:173:ARG:NH2	2.43	0.51
1:I:33:GLU:HG2	1:I:34:ILE:HD12	1.93	0.51
1:F:83:LYS:CA	1:F:86:LYS:HZ2	2.23	0.50
1:I:24:PHE:CE1	1:I:45:GLN:HG2	2.45	0.50
1:K:70:TRP:O	1:K:74:ALA:N	2.37	0.50
1:B:84:ILE:HG21	1:B:116:MET:HB2	1.93	0.50
1:F:85:ARG:NH2	1:F:197:ASP:O	2.44	0.50
1:G:104:ASP:HB3	1:G:108:MET:HE2	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:24:PHE:CE1	1:J:45:GLN:HB3	2.45	0.50
1:A:151:LEU:HD13	1:B:29:HIS:HB2	1.94	0.50
1:H:177:ASP:OD1	1:H:178:SER:N	2.45	0.50
1:D:73:GLU:OE2	1:D:76:ARG:NH2	2.39	0.50
1:G:16:VAL:HG12	1:G:64:ILE:HG23	1.94	0.50
1:K:28:ILE:CD1	1:K:44:ALA:HB2	2.35	0.50
1:L:5:TYR:CE1	1:L:32:SER:HB3	2.47	0.50
1:I:19:ILE:HD12	1:I:19:ILE:H	1.76	0.50
1:B:29:HIS:HB3	1:B:42:GLU:HB3	1.94	0.50
1:E:56:ARG:HH22	1:E:69:ASP:N	2.10	0.50
1:D:172:LEU:HD21	1:F:28:ILE:HD13	1.93	0.49
1:E:86:LYS:O	1:E:89:ARG:HB3	2.11	0.49
1:M:106:ASP:HB2	1:M:110:ARG:NH2	2.27	0.49
1:B:133:ARG:O	1:B:137:ILE:HG13	2.12	0.49
1:B:144:ILE:O	1:B:148:VAL:HG23	2.12	0.49
1:D:164:ALA:HB1	1:F:12:ILE:HG22	1.95	0.49
1:K:150:SER:HA	1:K:153:MET:HE3	1.94	0.49
1:E:95:TYR:HB2	1:E:100:ILE:HD11	1.93	0.49
1:F:27:LEU:HD13	1:F:41:ILE:HD11	1.93	0.49
1:F:93:GLU:OE1	1:F:97:LYS:HD2	2.13	0.49
1:G:33:GLU:HG2	1:G:34:ILE:N	2.22	0.49
1:M:144:ILE:O	1:M:148:VAL:HG23	2.12	0.49
1:C:6:GLU:O	1:C:10:LYS:HG3	2.12	0.49
1:D:73:GLU:HG3	1:D:126:LEU:HD11	1.94	0.49
1:E:42:GLU:OE1	1:E:51:THR:HG23	2.12	0.49
1:G:12:ILE:HA	1:G:27:LEU:HG	1.94	0.49
1:G:88:GLN:HG3	1:G:112:LEU:HD13	1.94	0.49
1:K:152:LYS:HA	1:K:165:TYR:HE2	1.77	0.49
1:M:106:ASP:O	1:M:110:ARG:HG3	2.12	0.49
1:B:87:ARG:HH22	1:B:111:LYS:NZ	2.10	0.49
1:G:95:TYR:HA	1:G:100:ILE:HG22	1.94	0.49
1:G:140:GLN:O	1:G:144:ILE:HG13	2.12	0.49
1:K:148:VAL:CG1	1:K:152:LYS:HE3	2.42	0.49
1:D:11:PHE:CE1	1:D:63:SER:HA	2.48	0.49
1:D:130:LEU:HD11	1:D:186:ILE:HG23	1.95	0.49
1:B:94:LEU:HD23	1:B:97:LYS:HD3	1.95	0.49
1:B:110:ARG:O	1:B:114:THR:OG1	2.23	0.49
1:B:140:GLN:O	1:B:144:ILE:HG13	2.12	0.49
1:N:130:LEU:HD22	1:N:186:ILE:HG23	1.95	0.49
1:F:12:ILE:HG13	1:F:27:LEU:CD1	2.42	0.49
1:L:124:ASN:OD1	1:L:125:LYS:N	2.46	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:130:LEU:HD11	1:M:186:ILE:HG23	1.94	0.49
1:B:161:PRO:HB2	1:B:163:ASN:OD1	2.12	0.49
1:D:29:HIS:HD2	1:F:160:ILE:HD11	1.77	0.49
1:H:8:LEU:O	1:H:11:PHE:N	2.32	0.49
1:J:64:ILE:O	1:J:65:LEU:HD23	2.11	0.49
1:E:52:MET:HE3	1:E:56:ARG:HD2	1.95	0.48
1:N:40:GLY:HA2	1:N:54:PRO:HD3	1.94	0.48
1:A:144:ILE:O	1:A:148:VAL:HG13	2.13	0.48
1:C:144:ILE:O	1:C:148:VAL:HG23	2.12	0.48
1:E:145:ASP:HA	1:E:148:VAL:HG22	1.95	0.48
1:J:119:VAL:O	1:J:123:GLN:N	2.45	0.48
1:L:155:TYR:HB2	1:L:165:TYR:CD2	2.48	0.48
1:A:55:GLU:H	1:A:55:GLU:CD	2.20	0.48
1:C:70:TRP:O	1:C:74:ALA:N	2.36	0.48
1:L:123:GLN:HG3	1:L:193:LEU:HD11	1.96	0.48
1:B:116:MET:HE3	1:B:116:MET:HB3	1.83	0.48
1:D:15:LYS:HE3	1:D:26:TYR:OH	2.13	0.48
1:G:70:TRP:CH2	1:G:71:LYS:HD3	2.48	0.48
1:A:134:LEU:HD11	1:A:183:ARG:HG3	1.95	0.48
1:H:52:MET:HE3	1:H:56:ARG:HB2	1.95	0.48
1:K:84:ILE:HG22	1:K:116:MET:HE2	1.96	0.48
1:D:58:LYS:HB2	1:D:67:LEU:HD11	1.96	0.48
1:F:83:LYS:HA	1:F:86:LYS:NZ	2.29	0.48
1:G:116:MET:HG2	1:G:116:MET:O	2.13	0.48
1:L:12:ILE:CD1	1:L:29:HIS:HA	2.44	0.48
1:L:22:ARG:NH2	1:L:182:GLU:OE1	2.35	0.48
1:L:83:LYS:HA	1:L:86:LYS:HE2	1.96	0.48
1:C:161:PRO:HG2	1:C:164:ALA:HB3	1.96	0.48
1:I:118:LYS:NZ	1:I:122:ASP:OD2	2.47	0.48
1:M:127:LYS:HZ2	1:M:193:LEU:HD23	1.78	0.48
1:N:49:ILE:O	1:N:49:ILE:HG13	2.13	0.48
1:H:102:LYS:HA	1:H:105:TYR:HB3	1.96	0.48
1:E:56:ARG:HH12	1:E:69:ASP:CB	2.27	0.48
1:J:12:ILE:HD13	1:J:29:HIS:HA	1.95	0.48
1:N:163:ASN:OD1	1:N:164:ALA:N	2.46	0.48
1:A:41:ILE:HD13	1:A:57:ILE:HD11	1.94	0.47
1:C:24:PHE:CE1	1:C:45:GLN:HB3	2.49	0.47
1:C:41:ILE:CD1	1:C:54:PRO:HA	2.44	0.47
1:F:130:LEU:CD1	1:F:186:ILE:HD12	2.44	0.47
1:K:24:PHE:O	1:K:45:GLN:HA	2.14	0.47
1:L:182:GLU:O	1:L:186:ILE:HG13	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:N:100:ILE:HD11	1:N:108:MET:CE	2.44	0.47
1:F:94:LEU:HA	1:F:97:LYS:CD	2.41	0.47
1:B:96:ASN:OD1	1:B:97:LYS:N	2.47	0.47
1:B:121:ASP:OD1	1:B:125:LYS:HE3	2.14	0.47
1:J:130:LEU:HD11	1:J:186:ILE:HG23	1.96	0.47
1:J:70:TRP:CH2	1:J:71:LYS:HG2	2.49	0.47
1:M:19:ILE:CD1	1:M:68:PRO:HD3	2.45	0.47
1:N:77:ILE:HG22	1:N:81:MET:HE2	1.96	0.47
1:K:41:ILE:HG22	1:K:52:MET:O	2.14	0.47
1:F:83:LYS:CG	1:F:87:ARG:HH12	2.27	0.47
1:G:144:ILE:HG23	1:G:172:LEU:HD22	1.96	0.47
1:L:8:LEU:HB3	1:L:30:VAL:HG21	1.97	0.47
1:M:22:ARG:HG3	1:M:178:SER:OG	2.15	0.47
1:A:110:ARG:HD3	1:A:110:ARG:C	2.40	0.47
1:C:102:LYS:HA	1:C:105:TYR:HB3	1.97	0.47
1:E:5:TYR:CE1	1:E:32:SER:HB3	2.50	0.47
1:H:4:SER:O	1:H:7:VAL:HG22	2.15	0.47
1:N:22:ARG:HG3	1:N:178:SER:OG	2.14	0.47
1:N:41:ILE:CD1	1:N:57:ILE:HD11	2.45	0.47
1:I:41:ILE:HD12	1:I:57:ILE:HD13	1.96	0.47
1:L:27:LEU:O	1:L:27:LEU:HG	2.14	0.47
1:M:95:TYR:HB2	1:M:100:ILE:HD11	1.96	0.47
1:B:33:GLU:HG3	1:B:34:ILE:N	2.25	0.47
1:B:92:GLU:OE2	1:B:105:TYR:OH	2.27	0.47
1:C:33:GLU:HG3	1:C:34:ILE:N	2.27	0.47
1:E:57:ILE:HD13	1:E:66:ILE:HG13	1.97	0.47
1:L:69:ASP:OD1	1:L:69:ASP:N	2.48	0.47
1:M:130:LEU:HD21	1:M:190:LEU:HB2	1.97	0.47
1:B:81:MET:CE	1:B:119:VAL:HG13	2.45	0.47
1:D:141:LEU:HD23	1:D:144:ILE:HD11	1.97	0.47
1:K:12:ILE:CD1	1:K:29:HIS:HA	2.41	0.47
1:M:44:ALA:HA	1:M:49:ILE:HA	1.97	0.47
1:C:8:LEU:HB3	1:C:30:VAL:HG21	1.96	0.46
1:E:56:ARG:HG2	1:E:66:ILE:HG23	1.97	0.46
1:H:33:GLU:HG3	1:H:34:ILE:N	2.25	0.46
1:J:68:PRO:HB2	1:J:70:TRP:CD1	2.50	0.46
1:K:31:TYR:HB2	1:K:40:GLY:O	2.14	0.46
1:M:69:ASP:N	1:M:69:ASP:OD1	2.46	0.46
1:C:26:TYR:N	1:C:26:TYR:CD1	2.83	0.46
1:F:12:ILE:HG13	1:F:27:LEU:HD11	1.97	0.46
1:L:15:LYS:NZ	1:L:17:LYS:HE3	2.30	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:76:ARG:O	1:L:80:LEU:HD13	2.16	0.46
1:C:177:ASP:OD1	1:C:178:SER:N	2.48	0.46
1:L:127:LYS:HE3	1:L:193:LEU:HD23	1.98	0.46
1:I:33:GLU:HG2	1:I:34:ILE:N	2.22	0.46
1:N:152:LYS:HG2	1:N:165:TYR:OH	2.16	0.46
1:B:82:GLU:HG3	1:B:86:LYS:HZ2	1.80	0.46
1:C:24:PHE:CD2	1:C:66:ILE:HG21	2.50	0.46
1:G:12:ILE:HD13	1:G:29:HIS:HA	1.97	0.46
1:J:9:THR:HA	1:J:12:ILE:HG13	1.97	0.46
1:N:107:ASP:HA	1:N:110:ARG:NH1	2.30	0.46
1:G:66:ILE:HA	1:G:66:ILE:HD13	1.69	0.46
1:I:53:GLY:HA3	1:I:55:GLU:OE1	2.16	0.46
1:I:57:ILE:CG2	1:I:64:ILE:HD11	2.45	0.46
1:J:78:LEU:HD23	1:J:78:LEU:HA	1.79	0.46
1:K:81:MET:HE2	1:K:81:MET:HB3	1.59	0.46
1:L:161:PRO:HG2	1:L:164:ALA:HB3	1.98	0.46
1:B:126:LEU:HD23	1:B:129:LYS:HD3	1.98	0.46
1:D:4:SER:HB2	1:D:7:VAL:HG12	1.96	0.46
1:I:31:TYR:CE2	1:I:42:GLU:HB2	2.50	0.46
1:N:151:LEU:HD23	1:N:169:MET:SD	2.55	0.46
1:F:29:HIS:HB3	1:F:42:GLU:HB3	1.98	0.46
1:I:50:LEU:HD11	1:I:52:MET:CE	2.44	0.46
1:J:18:ASP:HB2	1:J:22:ARG:O	2.16	0.46
1:E:73:GLU:HB3	1:E:126:LEU:CD1	2.45	0.46
1:G:70:TRP:CZ3	1:G:71:LYS:HD3	2.51	0.46
1:K:92:GLU:OE2	1:K:105:TYR:OH	2.28	0.46
1:M:41:ILE:HD13	1:M:57:ILE:HD11	1.97	0.46
1:E:141:LEU:O	1:E:144:ILE:HG12	2.14	0.46
1:G:29:HIS:HB3	1:G:42:GLU:HB3	1.98	0.46
1:D:85:ARG:HD2	1:D:88:GLN:NE2	2.31	0.45
1:D:144:ILE:O	1:D:148:VAL:HG13	2.15	0.45
1:E:41:ILE:HG22	1:E:52:MET:O	2.16	0.45
1:G:193:LEU:HD23	1:G:193:LEU:HA	1.70	0.45
1:J:31:TYR:HB2	1:J:40:GLY:O	2.15	0.45
1:K:9:THR:O	1:K:12:ILE:HG22	2.16	0.45
1:N:116:MET:O	1:N:116:MET:HG2	2.15	0.45
1:A:33:GLU:HG2	1:A:34:ILE:N	2.24	0.45
1:G:49:ILE:O	1:G:49:ILE:HG13	2.17	0.45
1:G:173:ARG:CZ	1:G:177:ASP:HB3	2.46	0.45
1:H:167:GLY:O	1:H:171:VAL:HG23	2.16	0.45
1:N:44:ALA:CB	1:N:49:ILE:HG22	2.46	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:N:152:LYS:HA	1:N:165:TYR:HE2	1.81	0.45
1:J:29:HIS:HD2	1:J:31:TYR:CD1	2.34	0.45
1:K:144:ILE:O	1:K:148:VAL:HG23	2.16	0.45
1:M:15:LYS:HG2	1:M:23:GLU:OE2	2.16	0.45
1:G:165:TYR:CZ	1:G:169:MET:HE2	2.52	0.45
1:L:133:ARG:O	1:L:137:ILE:HG13	2.17	0.45
1:L:145:ASP:O	1:L:149:ILE:HG13	2.16	0.45
1:C:24:PHE:O	1:C:45:GLN:HA	2.16	0.45
1:D:141:LEU:O	1:D:144:ILE:HG12	2.17	0.45
1:E:69:ASP:N	1:E:69:ASP:OD1	2.50	0.45
1:N:6:GLU:O	1:N:10:LYS:HG2	2.16	0.45
1:J:116:MET:O	1:J:119:VAL:HG12	2.17	0.45
1:L:56:ARG:HG2	1:L:56:ARG:O	2.16	0.45
1:M:127:LYS:NZ	1:M:193:LEU:HD23	2.32	0.45
1:M:163:ASN:OD1	1:M:164:ALA:N	2.49	0.45
1:I:120:LYS:HA	1:I:123:GLN:HB3	1.99	0.45
1:L:3:VAL:HG11	1:L:59:LEU:CD1	2.47	0.45
1:N:116:MET:HE2	1:N:116:MET:HB3	1.75	0.45
1:F:81:MET:HB3	1:F:81:MET:HE2	1.72	0.45
1:L:137:ILE:HG23	1:L:179:TYR:HD1	1.82	0.45
1:B:52:MET:HG2	1:B:53:GLY:N	2.32	0.45
1:G:76:ARG:CD	1:G:80:LEU:HD22	2.47	0.45
1:G:116:MET:HE2	1:G:116:MET:HB3	1.80	0.45
1:G:137:ILE:HG23	1:G:179:TYR:CD1	2.51	0.45
1:I:12:ILE:HA	1:I:27:LEU:CG	2.47	0.45
1:I:22:ARG:HG3	1:I:178:SER:OG	2.15	0.45
1:F:83:LYS:O	1:F:86:LYS:HG2	2.17	0.45
1:L:3:VAL:HG11	1:L:59:LEU:HD11	1.98	0.45
1:G:19:ILE:HD12	1:G:19:ILE:H	1.82	0.44
1:H:94:LEU:HD22	1:H:99:GLU:HB2	1.99	0.44
1:I:56:ARG:C	1:I:57:ILE:HD12	2.42	0.44
1:M:24:PHE:CE1	1:M:45:GLN:HG2	2.52	0.44
1:M:180:THR:O	1:M:183:ARG:HB3	2.18	0.44
1:D:126:LEU:O	1:D:130:LEU:N	2.43	0.44
1:E:66:ILE:N	1:E:66:ILE:HD12	2.31	0.44
1:F:19:ILE:CD1	1:F:67:LEU:HA	2.47	0.44
1:F:40:GLY:HA2	1:F:54:PRO:HD3	1.99	0.44
1:H:27:LEU:HG	1:H:27:LEU:O	2.17	0.44
1:L:57:ILE:HG21	1:L:64:ILE:HD11	1.99	0.44
1:D:11:PHE:CZ	1:D:63:SER:HA	2.52	0.44
1:F:123:GLN:HG3	1:F:193:LEU:HD13	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:83:LYS:HB3	1:L:83:LYS:HE3	1.59	0.44
1:N:66:ILE:HD13	1:N:66:ILE:HA	1.73	0.44
1:I:58:LYS:HB2	1:I:67:LEU:HD11	2.00	0.44
1:B:73:GLU:O	1:B:77:ILE:HG12	2.17	0.44
1:D:116:MET:O	1:D:116:MET:HG2	2.16	0.44
1:K:170:GLU:CG	1:K:173:ARG:HH21	2.30	0.44
1:A:18:ASP:OD2	1:A:22:ARG:NH1	2.51	0.44
1:F:55:GLU:H	1:F:55:GLU:CD	2.25	0.44
1:G:165:TYR:CD1	1:G:165:TYR:C	2.96	0.44
1:N:56:ARG:NH1	1:N:68:PRO:HA	2.31	0.44
1:A:193:LEU:O	1:A:196:LEU:N	2.47	0.44
1:E:85:ARG:HH22	1:E:197:ASP:C	2.25	0.44
1:C:154:SER:HB3	1:C:160:ILE:HG13	2.00	0.44
1:K:161:PRO:HG2	1:K:164:ALA:HB3	1.98	0.44
1:L:138:GLU:OE2	1:L:183:ARG:NE	2.44	0.44
1:C:182:GLU:O	1:C:186:ILE:HG13	2.18	0.44
1:D:73:GLU:CG	1:D:126:LEU:HD11	2.47	0.44
1:I:4:SER:OG	1:I:7:VAL:HG12	2.18	0.44
1:L:81:MET:HG2	1:L:119:VAL:HG21	2.00	0.44
1:A:193:LEU:O	1:A:196:LEU:HB2	2.18	0.43
1:D:38:ILE:HD13	1:D:38:ILE:HG21	1.83	0.43
1:E:152:LYS:HE2	1:E:152:LYS:HB3	1.85	0.43
1:F:130:LEU:HD12	1:F:186:ILE:HD12	1.99	0.43
1:G:19:ILE:HD11	1:G:68:PRO:HD3	1.99	0.43
1:I:57:ILE:HG21	1:I:64:ILE:HD11	2.00	0.43
1:K:56:ARG:NE	1:K:67:LEU:O	2.31	0.43
1:K:94:LEU:HB2	1:K:100:ILE:HD11	1.98	0.43
1:N:24:PHE:O	1:N:45:GLN:HA	2.18	0.43
1:E:31:TYR:HE1	1:E:42:GLU:HB2	1.83	0.43
1:E:144:ILE:HD12	1:E:176:LYS:HB2	1.98	0.43
1:F:130:LEU:HD11	1:F:186:ILE:HG23	2.00	0.43
1:I:14:GLN:O	1:I:16:VAL:HG13	2.18	0.43
1:L:9:THR:O	1:L:12:ILE:HG22	2.18	0.43
1:L:31:TYR:HB2	1:L:40:GLY:O	2.19	0.43
1:E:52:MET:SD	1:E:56:ARG:HD2	2.58	0.43
1:F:84:ILE:HG21	1:F:116:MET:HB2	1.99	0.43
1:I:33:GLU:CG	1:I:34:ILE:HD12	2.48	0.43
1:I:135:ASN:HA	1:I:138:GLU:HG2	2.00	0.43
1:K:80:LEU:HD23	1:K:80:LEU:HA	1.74	0.43
1:K:97:LYS:HE2	1:K:99:GLU:OE2	2.18	0.43
1:N:83:LYS:O	1:N:86:LYS:HG2	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:153:MET:HE2	1:A:153:MET:HB3	1.65	0.43
1:C:22:ARG:HG3	1:C:178:SER:OG	2.18	0.43
1:D:102:LYS:HA	1:D:105:TYR:HB3	2.00	0.43
1:D:137:ILE:HG22	1:D:141:LEU:HD12	2.00	0.43
1:G:24:PHE:CE1	1:G:66:ILE:HG21	2.53	0.43
1:G:194:ASP:OD1	1:G:194:ASP:N	2.48	0.43
1:I:55:GLU:CD	1:I:55:GLU:H	2.26	0.43
1:E:33:GLU:HG3	1:E:34:ILE:H	1.84	0.43
1:A:120:LYS:NZ	1:A:124:ASN:HD21	2.16	0.43
1:B:130:LEU:HD11	1:B:186:ILE:HG12	2.01	0.43
1:B:188:LYS:HA	1:B:188:LYS:HD2	1.68	0.43
1:C:88:GLN:HG3	1:C:112:LEU:HD23	2.01	0.43
1:D:85:ARG:HH21	1:D:88:GLN:HE22	1.66	0.43
1:F:131:LYS:O	1:F:134:LEU:N	2.52	0.43
1:M:130:LEU:HD12	1:M:130:LEU:HA	1.74	0.43
1:C:116:MET:O	1:C:116:MET:HG2	2.18	0.43
1:G:15:LYS:HG2	1:G:23:GLU:OE2	2.18	0.43
1:I:185:ASP:OD1	1:I:188:LYS:HE2	2.19	0.43
1:L:6:GLU:O	1:L:10:LYS:HG3	2.19	0.43
1:L:56:ARG:HG3	1:L:67:LEU:O	2.17	0.43
1:C:29:HIS:HB2	1:G:151:LEU:HD13	2.00	0.43
1:D:69:ASP:N	1:D:69:ASP:OD1	2.51	0.43
1:E:4:SER:HB2	1:E:7:VAL:HG23	2.01	0.43
1:J:100:ILE:HD13	1:J:105:TYR:HB2	2.00	0.43
1:N:83:LYS:HB3	1:N:83:LYS:HE3	1.62	0.43
1:F:94:LEU:HD23	1:F:97:LYS:HD3	2.00	0.43
1:F:156:ILE:C	1:F:158:SER:H	2.25	0.43
1:G:22:ARG:NH2	1:G:179:TYR:HA	2.34	0.43
1:M:113:ASP:O	1:M:117:LEU:N	2.48	0.43
1:M:148:VAL:HG13	1:M:169:MET:SD	2.59	0.43
1:B:193:LEU:O	1:B:196:LEU:HG	2.19	0.43
1:F:52:MET:CG	1:F:56:ARG:HD3	2.49	0.43
1:F:70:TRP:CE2	1:F:186:ILE:HD11	2.54	0.43
1:G:186:ILE:HD12	1:G:186:ILE:HG23	1.74	0.43
1:L:4:SER:O	1:L:7:VAL:HG22	2.19	0.43
1:L:22:ARG:HG3	1:L:178:SER:OG	2.19	0.43
1:L:88:GLN:NE2	1:L:113:ASP:OD1	2.51	0.43
1:B:73:GLU:HB3	1:B:126:LEU:CD1	2.48	0.42
1:B:130:LEU:HD11	1:B:186:ILE:HG23	2.01	0.42
1:I:83:LYS:HA	1:I:86:LYS:HG2	2.01	0.42
1:M:9:THR:HA	1:M:12:ILE:HG13	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:28:ILE:HG23	1:N:172:LEU:HD11	2.01	0.42
1:N:24:PHE:CD2	1:N:66:ILE:HG21	2.54	0.42
1:B:24:PHE:CZ	1:B:66:ILE:HG21	2.53	0.42
1:C:31:TYR:CE1	1:C:42:GLU:HB2	2.51	0.42
1:K:154:SER:O	1:K:159:GLU:HG2	2.18	0.42
1:M:79:SER:HA	1:M:82:GLU:OE1	2.19	0.42
1:N:31:TYR:CE2	1:N:42:GLU:HB2	2.54	0.42
1:E:177:ASP:OD1	1:E:178:SER:N	2.52	0.42
1:H:42:GLU:OE1	1:H:51:THR:HG23	2.18	0.42
1:M:22:ARG:HH12	1:M:179:TYR:HA	1.83	0.42
1:D:55:GLU:H	1:D:55:GLU:CD	2.26	0.42
1:A:71:LYS:HD2	1:A:71:LYS:HA	1.88	0.42
1:E:120:LYS:HD3	1:E:120:LYS:C	2.44	0.42
1:I:68:PRO:HB2	1:I:70:TRP:CD1	2.54	0.42
1:I:69:ASP:OD1	1:I:69:ASP:N	2.52	0.42
1:M:66:ILE:N	1:M:66:ILE:HD12	2.35	0.42
1:M:106:ASP:HB2	1:M:110:ARG:CZ	2.49	0.42
1:E:134:LEU:HD12	1:E:134:LEU:HA	1.74	0.42
1:F:140:GLN:HG2	1:F:179:TYR:CZ	2.55	0.42
1:G:50:LEU:HD11	1:G:52:MET:HE3	2.00	0.42
1:I:165:TYR:CD1	1:I:165:TYR:C	2.98	0.42
1:K:24:PHE:CE2	1:K:45:GLN:HG2	2.55	0.42
1:C:152:LYS:O	1:C:155:TYR:N	2.53	0.42
1:F:153:MET:HE2	1:F:153:MET:HB3	1.78	0.42
1:L:84:ILE:HG21	1:L:116:MET:HB2	2.02	0.42
1:A:27:LEU:HD13	1:A:41:ILE:HD11	2.01	0.42
1:E:68:PRO:HB2	1:E:70:TRP:CD1	2.55	0.42
1:I:31:TYR:HE2	1:I:42:GLU:HB2	1.84	0.42
1:J:91:LEU:HG	1:J:105:TYR:CD1	2.55	0.42
1:L:55:GLU:H	1:L:55:GLU:CD	2.27	0.42
1:N:100:ILE:HD11	1:N:108:MET:HE1	2.02	0.42
1:D:134:LEU:HA	1:D:134:LEU:HD12	1.69	0.42
1:F:167:GLY:O	1:F:171:VAL:HG23	2.19	0.42
1:F:168:SER:O	1:F:171:VAL:HB	2.20	0.42
1:I:145:ASP:O	1:I:149:ILE:HG13	2.20	0.42
1:J:15:LYS:HD2	1:J:23:GLU:CD	2.45	0.42
1:M:102:LYS:HA	1:M:105:TYR:HB3	2.02	0.42
1:C:17:LYS:HE2	1:C:23:GLU:OE1	2.20	0.42
1:F:131:LYS:O	1:F:135:ASN:N	2.44	0.42
1:H:118:LYS:HA	1:H:118:LYS:HD2	1.89	0.42
1:N:6:GLU:HG2	1:N:10:LYS:HE2	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:77:ILE:HG23	1:D:81:MET:HE3	2.02	0.41
1:D:80:LEU:HD21	1:I:35:ASP:HA	2.02	0.41
1:D:84:ILE:HG23	1:D:112:LEU:HD22	2.02	0.41
1:E:95:TYR:OH	1:E:102:LYS:HD3	2.20	0.41
1:H:66:ILE:N	1:H:66:ILE:HD12	2.34	0.41
1:L:62:ASP:OD1	1:L:63:SER:N	2.52	0.41
1:A:116:MET:O	1:A:116:MET:HG2	2.20	0.41
1:B:27:LEU:O	1:B:27:LEU:HG	2.20	0.41
1:C:55:GLU:H	1:C:55:GLU:CD	2.28	0.41
1:D:78:LEU:C	1:D:78:LEU:HD23	2.45	0.41
1:G:81:MET:HG2	1:G:119:VAL:HG21	2.02	0.41
1:K:8:LEU:HD23	1:K:8:LEU:HA	1.86	0.41
1:N:88:GLN:NE2	1:N:113:ASP:OD1	2.52	0.41
1:D:116:MET:HA	1:D:119:VAL:HG22	2.01	0.41
1:J:69:ASP:OD1	1:J:69:ASP:N	2.54	0.41
1:K:22:ARG:HG3	1:K:178:SER:OG	2.20	0.41
1:K:95:TYR:HB2	1:K:105:TYR:CD1	2.56	0.41
1:L:140:GLN:HG2	1:L:179:TYR:OH	2.21	0.41
1:M:27:LEU:HA	1:M:43:VAL:HG23	2.01	0.41
1:B:44:ALA:HB2	1:B:49:ILE:HG22	2.02	0.41
1:B:177:ASP:HA	1:B:180:THR:OG1	2.19	0.41
1:E:52:MET:HE2	1:E:52:MET:HB3	1.73	0.41
1:H:130:LEU:HD11	1:H:186:ILE:HG23	2.03	0.41
1:C:34:ILE:HG12	1:K:83:LYS:NZ	2.35	0.41
1:D:156:ILE:C	1:D:158:SER:H	2.28	0.41
1:I:137:ILE:HG23	1:I:179:TYR:CD1	2.56	0.41
1:L:127:LYS:CE	1:L:193:LEU:HD23	2.51	0.41
1:E:165:TYR:CZ	1:E:169:MET:HG3	2.56	0.41
1:F:8:LEU:HD23	1:F:8:LEU:HA	1.92	0.41
1:G:19:ILE:CD1	1:G:68:PRO:HD3	2.50	0.41
1:J:153:MET:HE3	1:J:153:MET:HB3	1.92	0.41
1:M:55:GLU:H	1:M:55:GLU:CD	2.28	0.41
1:N:41:ILE:HG21	1:N:41:ILE:HD13	1.88	0.41
1:C:35:ASP:HA	1:K:80:LEU:HD21	2.03	0.41
1:E:52:MET:CE	1:E:56:ARG:HD2	2.51	0.41
1:N:18:ASP:HB2	1:N:22:ARG:O	2.21	0.41
1:A:144:ILE:HG12	1:B:49:ILE:HD11	2.02	0.41
1:B:31:TYR:HE2	1:B:42:GLU:OE1	2.03	0.41
1:B:82:GLU:C	1:B:86:LYS:HZ2	2.29	0.41
1:E:161:PRO:HB2	1:E:163:ASN:OD1	2.21	0.41
1:F:177:ASP:OD1	1:F:178:SER:N	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:70:TRP:O	1:G:74:ALA:N	2.46	0.41
1:H:12:ILE:HA	1:H:27:LEU:HG	2.02	0.41
1:J:22:ARG:NH2	1:J:182:GLU:OE1	2.50	0.41
1:J:75:ILE:HD12	1:J:75:ILE:HA	1.81	0.41
1:M:43:VAL:CG1	1:M:52:MET:HE1	2.51	0.41
1:A:49:ILE:HG12	1:B:144:ILE:HG12	2.01	0.41
1:A:116:MET:HE2	1:A:116:MET:HB3	1.70	0.41
1:A:140:GLN:NE2	1:B:49:ILE:O	2.53	0.41
1:B:116:MET:HA	1:B:119:VAL:CG1	2.48	0.41
1:B:119:VAL:O	1:B:123:GLN:N	2.44	0.41
1:C:151:LEU:HD23	1:C:169:MET:SD	2.60	0.41
1:E:44:ALA:HA	1:E:49:ILE:HA	2.02	0.41
1:G:95:TYR:HD1	1:G:100:ILE:HG23	1.86	0.41
1:G:156:ILE:C	1:G:158:SER:H	2.28	0.41
1:J:41:ILE:HD12	1:J:57:ILE:HD13	2.03	0.41
1:J:88:GLN:HG3	1:J:112:LEU:CD1	2.49	0.41
1:J:176:LYS:HB3	1:J:176:LYS:HE2	1.76	0.41
1:J:195:SER:HB3	1:K:85:ARG:HH21	1.85	0.41
1:L:18:ASP:HB2	1:L:22:ARG:O	2.21	0.41
1:M:31:TYR:HE2	1:M:42:GLU:OE1	2.03	0.41
1:M:133:ARG:O	1:M:137:ILE:HG13	2.20	0.41
1:N:15:LYS:HG3	1:N:23:GLU:OE2	2.21	0.41
1:A:57:ILE:HG23	1:A:64:ILE:HG13	2.03	0.41
1:C:50:LEU:HD11	1:C:52:MET:HE3	2.02	0.41
1:F:131:LYS:HA	1:F:134:LEU:CB	2.51	0.41
1:K:75:ILE:HD12	1:K:76:ARG:N	2.36	0.41
1:M:138:GLU:HA	1:M:141:LEU:HB2	2.02	0.41
1:N:71:LYS:HA	1:N:74:ALA:HB3	2.02	0.41
1:C:177:ASP:HA	1:C:180:THR:OG1	2.20	0.40
1:G:56:ARG:NH2	1:G:69:ASP:HB3	2.36	0.40
1:G:76:ARG:HD2	1:G:80:LEU:HD22	2.03	0.40
1:H:120:LYS:HA	1:H:123:GLN:HB3	2.03	0.40
1:J:16:VAL:HG23	1:J:25:GLY:O	2.22	0.40
1:K:148:VAL:CG1	1:K:169:MET:HE1	2.51	0.40
1:M:116:MET:HA	1:M:119:VAL:HG12	2.03	0.40
1:C:34:ILE:HG12	1:K:83:LYS:HZ3	1.86	0.40
1:E:126:LEU:HD23	1:E:126:LEU:HA	1.93	0.40
1:I:116:MET:HA	1:I:119:VAL:HG22	2.02	0.40
1:J:116:MET:HE3	1:J:116:MET:HB3	1.77	0.40
1:A:28:ILE:HD11	1:A:44:ALA:HB2	2.04	0.40
1:A:173:ARG:CZ	1:A:177:ASP:OD1	2.69	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:16:VAL:HG22	1:H:25:GLY:O	2.21	0.40
1:H:106:ASP:O	1:H:110:ARG:N	2.35	0.40
1:K:4:SER:O	1:K:7:VAL:HG22	2.21	0.40
1:C:8:LEU:HA	1:C:8:LEU:HD23	1.87	0.40
1:F:193:LEU:HD23	1:F:193:LEU:HA	1.88	0.40
1:H:141:LEU:CD1	1:H:176:LYS:HG3	2.51	0.40
1:K:33:GLU:CG	1:K:34:ILE:H	2.33	0.40
1:M:29:HIS:HB3	1:M:42:GLU:HB3	2.03	0.40
1:G:114:THR:O	1:G:117:LEU:HB3	2.22	0.40
1:J:52:MET:HG3	1:J:56:ARG:HD3	2.02	0.40
1:J:156:ILE:HD13	1:J:156:ILE:HA	1.96	0.40
1:L:89:ARG:HD3	1:L:89:ARG:HA	1.86	0.40
1:L:145:ASP:HA	1:L:148:VAL:HG22	2.04	0.40
1:N:44:ALA:HB2	1:N:49:ILE:HG22	2.04	0.40

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

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:152:LYS:NZ	1:L:99:GLU:OE1[2_556]	2.17	0.03

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	192/238 (81%)	188 (98%)	4 (2%)	0	100	100
1	B	192/238 (81%)	189 (98%)	3 (2%)	0	100	100
1	C	193/238 (81%)	189 (98%)	4 (2%)	0	100	100
1	D	193/238 (81%)	191 (99%)	2 (1%)	0	100	100
1	E	192/238 (81%)	190 (99%)	2 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	F	194/238 (82%)	190 (98%)	3 (2%)	1 (0%)	25	43
1	G	193/238 (81%)	190 (98%)	3 (2%)	0	100	100
1	H	192/238 (81%)	190 (99%)	2 (1%)	0	100	100
1	I	191/238 (80%)	188 (98%)	3 (2%)	0	100	100
1	J	191/238 (80%)	187 (98%)	4 (2%)	0	100	100
1	K	191/238 (80%)	187 (98%)	4 (2%)	0	100	100
1	L	190/238 (80%)	186 (98%)	4 (2%)	0	100	100
1	M	188/238 (79%)	187 (100%)	1 (0%)	0	100	100
1	N	191/238 (80%)	188 (98%)	3 (2%)	0	100	100
All	All	2683/3332 (80%)	2640 (98%)	42 (2%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	F	46	GLY

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	177/218 (81%)	171 (97%)	6 (3%)	32	57
1	B	177/218 (81%)	170 (96%)	7 (4%)	27	51
1	C	178/218 (82%)	169 (95%)	9 (5%)	20	39
1	D	178/218 (82%)	173 (97%)	5 (3%)	38	64
1	E	177/218 (81%)	171 (97%)	6 (3%)	32	57
1	F	179/218 (82%)	167 (93%)	12 (7%)	13	27
1	G	178/218 (82%)	169 (95%)	9 (5%)	20	39
1	H	177/218 (81%)	168 (95%)	9 (5%)	20	39
1	I	176/218 (81%)	168 (96%)	8 (4%)	23	45

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	J	176/218 (81%)	169 (96%)	7 (4%)	27	51
1	K	176/218 (81%)	168 (96%)	8 (4%)	23	45
1	L	175/218 (80%)	168 (96%)	7 (4%)	27	51
1	M	173/218 (79%)	164 (95%)	9 (5%)	19	38
1	N	176/218 (81%)	171 (97%)	5 (3%)	38	64
All	All	2473/3052 (81%)	2366 (96%)	107 (4%)	25	47

All (107) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	9	THR
1	A	19	ILE
1	A	38	ILE
1	A	49	ILE
1	A	153	MET
1	A	180	THR
1	B	9	THR
1	B	19	ILE
1	B	27	LEU
1	B	34	ILE
1	B	38	ILE
1	B	48	SER
1	B	49	ILE
1	C	9	THR
1	C	19	ILE
1	C	27	LEU
1	C	38	ILE
1	C	49	ILE
1	C	51	THR
1	C	58	LYS
1	C	119	VAL
1	C	169	MET
1	D	9	THR
1	D	38	ILE
1	D	39	THR
1	D	180	THR
1	D	189	THR
1	E	9	THR
1	E	16	VAL
1	E	51	THR

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Mol	Chain	Res	Type
1	E	100	ILE
1	E	180	THR
1	E	189	THR
1	F	9	THR
1	F	23	GLU
1	F	27	LEU
1	F	34	ILE
1	F	38	ILE
1	F	39	THR
1	F	94	LEU
1	F	138	GLU
1	F	148	VAL
1	F	156	ILE
1	F	169	MET
1	F	180	THR
1	G	9	THR
1	G	16	VAL
1	G	19	ILE
1	G	27	LEU
1	G	38	ILE
1	G	49	ILE
1	G	102	LYS
1	G	180	THR
1	G	194	ASP
1	H	9	THR
1	H	27	LEU
1	H	30	VAL
1	H	34	ILE
1	H	49	ILE
1	H	51	THR
1	H	93	GLU
1	H	169	MET
1	H	180	THR
1	I	9	THR
1	I	27	LEU
1	I	30	VAL
1	I	39	THR
1	I	49	ILE
1	I	51	THR
1	I	100	ILE
1	I	102	LYS
1	J	9	THR

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Mol	Chain	Res	Type
1	J	16	VAL
1	J	27	LEU
1	J	49	ILE
1	J	71	LYS
1	J	75	ILE
1	J	114	THR
1	K	16	VAL
1	K	19	ILE
1	K	39	THR
1	K	85	ARG
1	K	105	TYR
1	K	144	ILE
1	K	180	THR
1	K	187	ARG
1	L	9	THR
1	L	27	LEU
1	L	38	ILE
1	L	39	THR
1	L	49	ILE
1	L	116	MET
1	L	180	THR
1	M	19	ILE
1	M	38	ILE
1	M	39	THR
1	M	43	VAL
1	M	49	ILE
1	M	102	LYS
1	M	119	VAL
1	M	180	THR
1	M	189	THR
1	N	9	THR
1	N	38	ILE
1	N	39	THR
1	N	51	THR
1	N	180	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (18) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	29	HIS
1	A	124	ASN
1	B	123	GLN

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Mol	Chain	Res	Type
1	C	140	GLN
1	D	88	GLN
1	D	135	ASN
1	F	124	ASN
1	F	140	GLN
1	G	88	GLN
1	G	140	GLN
1	H	45	GLN
1	I	135	ASN
1	J	29	HIS
1	L	98	GLN
1	L	143	HIS
1	M	143	HIS
1	N	88	GLN
1	N	124	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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

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	194/238 (81%)	-0.38	2 (1%) 79 78	31, 52, 98, 146	0
1	B	194/238 (81%)	-0.38	0 100 100	41, 72, 126, 218	0
1	C	195/238 (81%)	-0.55	1 (0%) 87 86	23, 48, 104, 129	0
1	D	195/238 (81%)	-0.33	2 (1%) 79 78	34, 72, 122, 147	0
1	E	194/238 (81%)	-0.52	2 (1%) 79 78	25, 53, 111, 148	0
1	F	196/238 (82%)	-0.23	3 (1%) 71 68	36, 82, 125, 147	0
1	G	195/238 (81%)	-0.41	3 (1%) 71 68	24, 47, 94, 145	0
1	H	194/238 (81%)	-0.53	1 (0%) 87 86	30, 62, 114, 144	0
1	I	193/238 (81%)	-0.48	1 (0%) 87 86	26, 65, 111, 170	0
1	J	193/238 (81%)	-0.45	2 (1%) 79 78	35, 69, 114, 139	0
1	K	193/238 (81%)	-0.37	1 (0%) 87 86	29, 58, 103, 156	0
1	L	192/238 (80%)	-0.44	0 100 100	33, 66, 115, 182	0
1	M	190/238 (79%)	-0.35	0 100 100	44, 77, 121, 151	0
1	N	193/238 (81%)	-0.43	2 (1%) 79 78	37, 70, 118, 166	0
All	All	2711/3332 (81%)	-0.42	20 (0%) 84 83	23, 64, 117, 218	0

All (20) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	40	GLY	4.2
1	A	40	GLY	4.0
1	E	39	THR	3.5
1	A	39	THR	3.0
1	G	39	THR	2.7
1	D	162	GLU	2.6
1	E	40	GLY	2.5
1	F	77	ILE	2.3

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Mol	Chain	Res	Type	RSRZ
1	J	94	LEU	2.3
1	F	31	TYR	2.3
1	I	39	THR	2.3
1	K	31	TYR	2.2
1	G	86	LYS	2.2
1	N	40	GLY	2.1
1	D	155	TYR	2.1
1	F	40	GLY	2.1
1	J	11	PHE	2.1
1	H	32	SER	2.1
1	N	151	LEU	2.0
1	C	40	GLY	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 oligosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.