



Full wwPDB X-ray Structure Validation Report ⓘ

Sep 28, 2026 – 03:42 PM JST

PDB ID : 9WZ2 / pdb_00009wz2
Title : Crystal structure of Cas13a-B complex
Authors : Chen, H.; Huang, L.; Chen, J.; Liu, L.
Deposited on : 2025-09-28
Resolution : 3.70 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 Phenix2.2
Xtriage (Phenix)	:	2.2
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.015 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.51

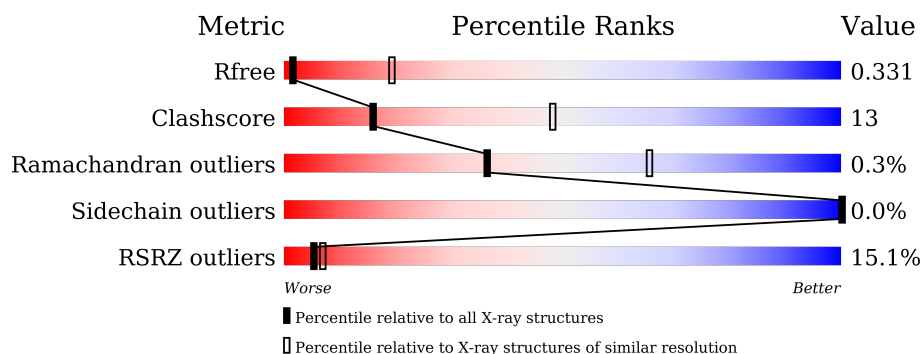
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.70 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}	180053	1131 (3.80-3.60)
Clashscore	190562	1171 (3.80-3.60)
Ramachandran outliers	187476	1129 (3.80-3.60)
Sidechain outliers	187428	1126 (3.80-3.60)
RSRZ outliers	180081	1130 (3.80-3.60)

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	140	4% 71% 27% .
1	B	140	2% 70% 27% ..
1	C	140	4% 76% 22% .
1	D	140	4% 58% 39% ..
1	E	140	8% 64% 34% .
1	F	140	% 73% 26% .

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Mol	Chain	Length	Quality of chain
1	G	140	6% 64% 34%
1	H	140	2% 76% 24%
2	I	1159	26% 65% 28% 7%
2	J	1159	13% 69% 23% 7%

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 27046 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 HicB-like antitoxin of toxin-antitoxin system domain-containing protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	138	Total	C	N	O	S	0	0	0
			1120	729	172	216	3			
1	B	138	Total	C	N	O	S	0	0	0
			1120	729	172	216	3			
1	C	138	Total	C	N	O	S	0	0	0
			1117	728	172	214	3			
1	D	138	Total	C	N	O	S	0	0	0
			1120	729	172	216	3			
1	E	138	Total	C	N	O	S	0	0	0
			1120	729	172	216	3			
1	F	138	Total	C	N	O	S	0	0	0
			1120	729	172	216	3			
1	G	138	Total	C	N	O	S	0	0	0
			1117	728	172	214	3			
1	H	140	Total	C	N	O	S	0	0	0
			1130	734	174	219	3			

- Molecule 2 is a protein called CRISPR-associated endoribonuclease Cas13a.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	I	1083	Total	C	N	O	S	0	0	0
			9033	5805	1519	1686	23			
2	J	1073	Total	C	N	O	S	0	0	0
			8957	5762	1506	1666	23			

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	4	Total	O	0	0
			4	4		
3	B	7	Total	O	0	0
			7	7		

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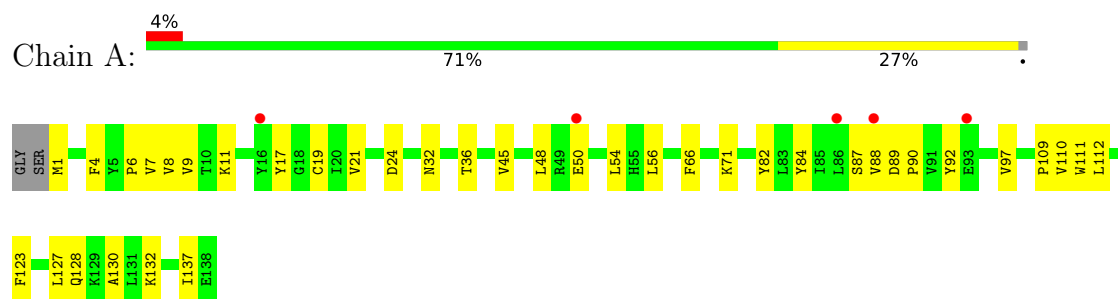
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	C	4	Total 4	O 4	0	0
3	D	7	Total 7	O 7	0	0
3	E	7	Total 7	O 7	0	0
3	F	3	Total 3	O 3	0	0
3	G	12	Total 12	O 12	0	0
3	H	6	Total 6	O 6	0	0
3	I	21	Total 21	O 21	0	0
3	J	21	Total 21	O 21	0	0

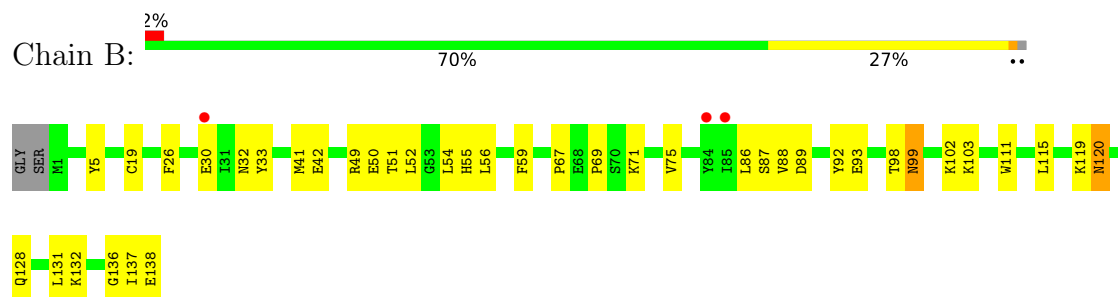
3 Residue-property plots [i](#)

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.

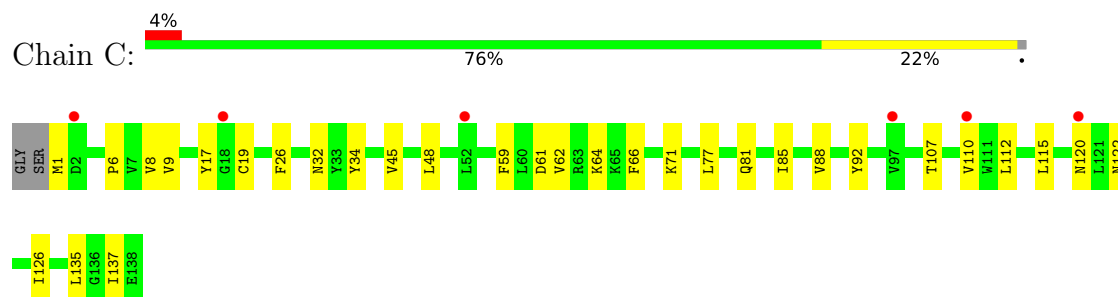
- Molecule 1: HicB-like antitoxin of toxin-antitoxin system domain-containing protein



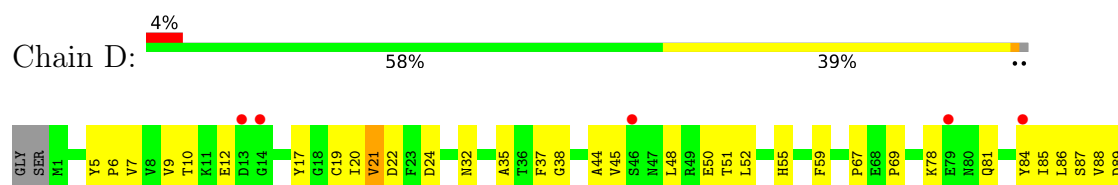
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- Molecule 1: HicB-like antitoxin of toxin-antitoxin system domain-containing protein



- Molecule 1: HicB-like antitoxin of toxin-antitoxin system domain-containing protein

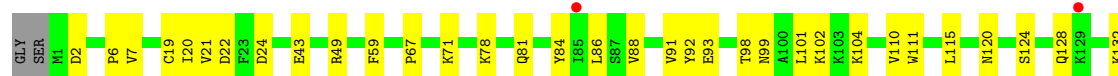




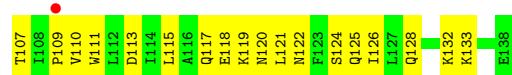
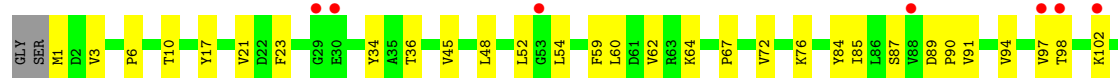
- Molecule 1: HicB-like antitoxin of toxin-antitoxin system domain-containing protein



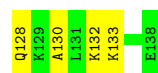
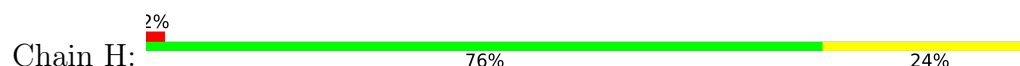
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- Molecule 1: HicB-like antitoxin of toxin-antitoxin system domain-containing protein



- Molecule 2: CRISPR-associated endoribonuclease Cas13a





Chain J:



4 Data and refinement statistics

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, α , β , γ	200.16Å 200.16Å 348.20Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.53 – 3.70 49.53 – 3.70	Depositor EDS
% Data completeness (in resolution range)	85.2 (49.53-3.70) 85.5 (49.53-3.70)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.71 (at 3.67Å)	Xtriage
Refinement program	PHENIX dev_svn	Depositor
R, R_{free}	0.322 , 0.330 0.322 , 0.331	Depositor DCC
R_{free} test set	2000 reflections (2.62%)	wwPDB-VP
Wilson B-factor (Å ²)	3.6	Xtriage
Anisotropy	0.615	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.11 , 0.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.28$, $\langle L^2 \rangle = 0.13$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.54	EDS
Total number of atoms	27046	wwPDB-VP
Average B, all atoms (Å ²)	38.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.77% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality

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	0.22	0/1142	0.61	0/1545
1	B	0.24	0/1142	0.63	0/1545
1	C	0.26	0/1139	0.63	0/1541
1	D	0.23	0/1142	0.62	0/1545
1	E	0.25	0/1142	0.61	0/1545
1	F	0.22	0/1142	0.61	0/1545
1	G	0.19	0/1139	0.53	0/1541
1	H	0.21	0/1152	0.63	0/1558
2	I	0.20	0/9184	0.54	2/12293 (0.0%)
2	J	0.18	0/9105	0.52	2/12180 (0.0%)
All	All	0.20	0/27429	0.56	4/36838 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
2	I	0	2
2	J	0	2
All	All	0	4

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	I	549	ASN	CA-C-N	5.93	128.01	122.85
2	I	549	ASN	C-N-CA	5.93	128.01	122.85
2	J	544	GLU	CA-C-N	5.48	131.57	121.70
2	J	544	GLU	C-N-CA	5.48	131.57	121.70

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	I	1052	ALA	Peptide
2	I	913	ARG	Peptide
2	J	227	TYR	Peptide
2	J	232	GLY	Peptide

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1120	0	1129	35	0
1	B	1120	0	1129	40	0
1	C	1117	0	1127	34	0
1	D	1120	0	1129	57	0
1	E	1120	0	1129	39	0
1	F	1120	0	1129	30	0
1	G	1117	0	1127	45	0
1	H	1130	0	1137	31	0
2	I	9033	0	9098	262	0
2	J	8957	0	9033	218	0
3	A	4	0	0	0	0
3	B	7	0	0	0	0
3	C	4	0	0	0	0
3	D	7	0	0	0	0
3	E	7	0	0	0	0
3	F	3	0	0	0	0
3	G	12	0	0	0	0
3	H	6	0	0	0	0
3	I	21	0	0	0	0
3	J	21	0	0	0	0
All	All	27046	0	27167	715	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 13.

All (715) 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)
2:I:867:MET:CE	2:I:1057:ILE:HD11	1.72	1.17
2:J:135:LYS:HA	2:J:138:LEU:HD22	1.27	1.09
2:I:215:LEU:HB3	2:I:222:LYS:HD3	1.37	1.04
2:I:771:HIS:HA	2:I:774:LEU:HD22	1.40	1.03
2:J:135:LYS:HA	2:J:138:LEU:CD2	1.87	1.03
1:A:4:PHE:CE2	1:B:41:MET:HE1	1.94	1.02
2:I:867:MET:HE1	2:I:1057:ILE:HD11	1.02	1.01
2:I:867:MET:HE1	2:I:1057:ILE:CD1	1.92	0.99
2:I:538:LEU:HD22	2:I:746:GLU:HB3	1.46	0.94
2:I:1126:LEU:HD12	2:I:1127:LYS:N	1.89	0.86
2:J:451:MET:HA	2:J:457:ILE:HD11	1.58	0.85
1:D:21:VAL:HG23	1:D:22:ASP:H	1.42	0.84
2:I:115:LYS:HB3	2:I:120:GLU:HB2	1.59	0.84
2:J:1103:LYS:HB2	2:J:1113:GLN:HB2	1.58	0.84
2:J:135:LYS:O	2:J:138:LEU:HD23	1.77	0.83
1:G:62:VAL:HG23	1:G:64:LYS:H	1.39	0.83
2:I:887:LEU:HD13	2:I:945:VAL:HB	1.60	0.83
1:F:6:PRO:HG2	1:F:21:VAL:HG21	1.58	0.83
1:F:98:THR:HG22	2:J:366:ILE:HD11	1.58	0.82
2:I:771:HIS:HA	2:I:774:LEU:CD2	2.08	0.82
2:I:572:ILE:HG21	2:I:690:MET:HB3	1.63	0.81
1:F:78:LYS:H	1:F:81:GLN:HB2	1.45	0.81
2:J:974:ASP:HA	2:J:977:PHE:HD2	1.47	0.79
1:D:89:ASP:HB3	1:D:92:TYR:HB3	1.65	0.79
2:I:823:LYS:HD2	2:I:872:GLU:HG3	1.66	0.78
2:I:794:SER:HA	2:I:797:LEU:HB2	1.65	0.77
2:J:1069:GLU:HB2	2:J:1110:ILE:HG13	1.67	0.77
1:A:87:SER:OG	1:B:86:LEU:HD23	1.84	0.77
2:I:581:ASP:HB2	2:I:584:LYS:HB2	1.67	0.77
1:H:37:PHE:HZ	2:I:1083:ASN:HA	1.50	0.76
2:J:774:LEU:HD21	2:J:803:LEU:HD22	1.66	0.76
2:I:469:SER:HA	2:I:472:ARG:HB2	1.67	0.75
1:E:130:ALA:HB2	1:H:130:ALA:HB2	1.68	0.75
2:I:211:GLU:HA	2:I:222:LYS:HE3	1.69	0.75
2:I:846:ILE:HD13	2:I:891:SER:HB3	1.69	0.74
2:I:1050:TYR:HD1	2:I:1055:ASN:HB3	1.52	0.74
1:H:89:ASP:HB3	1:H:92:TYR:HB3	1.68	0.74
2:J:1093:LEU:HB3	2:J:1098:PHE:HB3	1.70	0.74
2:J:971:TRP:HA	2:J:974:ASP:HB2	1.68	0.73
1:B:102:LYS:HB2	1:C:110:VAL:HG22	1.71	0.73
2:I:1126:LEU:HD13	2:I:1128:LYS:O	1.88	0.73
1:D:7:VAL:HB	1:D:19:CYS:O	1.89	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:299:GLU:HG3	2:I:337:LEU:HD21	1.69	0.73
2:I:211:GLU:CA	2:I:222:LYS:HE3	2.18	0.72
1:D:78:LYS:H	1:D:81:GLN:HB2	1.53	0.72
1:A:110:VAL:HG22	1:D:102:LYS:HB2	1.71	0.72
1:A:123:PHE:HB2	1:D:106:LEU:HD21	1.71	0.72
1:B:103:LYS:HG3	1:C:107:THR:HG22	1.72	0.71
2:J:389:SER:O	2:J:393:ILE:HG22	1.90	0.71
2:J:135:LYS:CA	2:J:138:LEU:CD2	2.67	0.71
1:G:87:SER:CB	1:H:86:LEU:HD23	2.19	0.71
1:G:87:SER:HB2	1:H:86:LEU:HD23	1.73	0.71
2:I:1136:ASN:HB3	2:I:1140:LEU:HD23	1.71	0.71
1:C:62:VAL:HG21	1:C:64:LYS:HE3	1.73	0.71
2:J:385:VAL:HA	2:J:388:PHE:HB3	1.71	0.71
2:J:390:LEU:HD11	2:J:402:ILE:HG22	1.72	0.71
2:J:393:ILE:HD11	2:J:441:LEU:HA	1.73	0.71
1:B:89:ASP:HB3	1:B:92:TYR:HB3	1.71	0.70
1:D:88:VAL:HB	1:D:93:GLU:HG3	1.71	0.70
2:I:1126:LEU:HD12	2:I:1128:LYS:N	2.06	0.70
2:J:527:ARG:HB2	2:J:718:LYS:HB2	1.72	0.70
1:H:88:VAL:HB	1:H:93:GLU:HG3	1.72	0.69
2:I:1063:SER:HB3	2:I:1066:GLU:HB2	1.74	0.69
2:I:211:GLU:HB3	2:I:222:LYS:HG2	1.73	0.69
2:I:940:HIS:CD2	2:I:1137:SER:HA	2.27	0.69
1:A:4:PHE:CD2	1:B:41:MET:HE1	2.27	0.69
2:I:440:ASN:HD21	2:I:864:LYS:HD3	1.56	0.69
1:E:95:ALA:HB1	1:G:118:GLU:HB3	1.74	0.68
2:I:771:HIS:CA	2:I:774:LEU:HD22	2.21	0.68
2:J:579:THR:HG21	2:J:584:LYS:HD3	1.74	0.68
2:I:127:LEU:HD12	2:I:127:LEU:O	1.93	0.68
2:I:959:ARG:HG2	2:I:1092:ILE:HG21	1.75	0.68
1:A:111:TRP:H	1:A:111:TRP:CD1	2.09	0.68
1:E:91:VAL:HG11	1:F:135:LEU:HB3	1.76	0.68
2:J:407:ARG:HD3	2:J:409:LYS:HE3	1.76	0.68
2:I:932:ILE:HG22	2:I:935:ILE:HD12	1.76	0.68
1:E:98:THR:HG21	1:G:119:LYS:HE3	1.75	0.68
2:J:456:GLU:OE2	2:J:498:ILE:HD11	1.94	0.68
2:J:251:VAL:HG21	2:J:257:LEU:HG	1.75	0.67
2:J:1024:GLU:HA	2:J:1026:LYS:H	1.59	0.67
2:I:1050:TYR:CD1	2:I:1055:ASN:HB3	2.29	0.67
2:J:518:ARG:HG3	2:J:725:LEU:HD21	1.76	0.67
2:I:932:ILE:HD11	2:I:1131:LEU:HD21	1.76	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:861:ASN:O	2:I:865:TYR:HD1	1.76	0.67
1:D:6:PRO:HB3	1:D:85:ILE:HG23	1.77	0.66
2:I:1065:LEU:HB3	2:I:1110:ILE:HB	1.77	0.66
1:D:21:VAL:HG23	1:D:22:ASP:N	2.11	0.66
2:J:870:LEU:HG	2:J:1060:ALA:HB2	1.77	0.66
2:J:437:VAL:O	2:J:441:LEU:HD12	1.95	0.66
2:I:823:LYS:HG3	2:I:868:LEU:HD21	1.78	0.66
2:J:742:GLU:HG2	2:J:745:ARG:HH21	1.61	0.65
2:J:377:ARG:HD2	2:J:959:ARG:HH22	1.60	0.65
1:A:7:VAL:HG23	1:A:84:TYR:HB2	1.78	0.65
2:I:800:ILE:HA	2:I:803:LEU:HD12	1.79	0.64
1:A:36:THR:HG21	1:A:48:LEU:HG	1.78	0.64
2:I:932:ILE:HD12	2:I:1133:THR:HG21	1.77	0.64
2:J:803:LEU:HD23	2:J:803:LEU:O	1.97	0.64
2:I:392:ASN:HB2	2:I:865:TYR:CE1	2.33	0.64
2:I:200:TYR:OH	2:I:231:ILE:HD11	1.98	0.64
2:J:323:ILE:HG21	2:J:332:LEU:HD22	1.79	0.63
2:I:766:LEU:HD23	2:I:803:LEU:HD11	1.79	0.63
2:J:510:LYS:HD2	2:J:744:LEU:HD12	1.80	0.63
2:J:385:VAL:HG11	2:J:769:LEU:HD23	1.79	0.63
2:I:346:ARG:HG2	2:I:350:LYS:HD3	1.79	0.63
2:J:385:VAL:HG13	2:J:388:PHE:HD2	1.63	0.63
2:I:771:HIS:C	2:I:774:LEU:CD2	2.72	0.62
2:J:858:ALA:HB2	2:J:947:PHE:O	1.99	0.62
2:I:199:LEU:HD11	2:I:267:LEU:N	2.15	0.62
2:J:309:TYR:HD2	2:J:310:LYS:HE2	1.64	0.62
2:J:859:PHE:HA	2:J:862:ILE:HG22	1.81	0.62
1:B:41:MET:SD	1:B:42:GLU:N	2.72	0.62
2:I:963:ARG:HH12	2:I:966:GLY:HA3	1.63	0.62
2:I:460:PHE:HE1	2:I:499:SER:HG	1.47	0.62
2:J:137:LYS:HZ3	2:J:140:LYS:HD3	1.64	0.62
1:F:86:LEU:HD22	1:F:88:VAL:HG13	1.81	0.61
1:G:6:PRO:HG2	1:G:21:VAL:HG21	1.82	0.61
2:I:393:ILE:HG23	2:I:441:LEU:HD23	1.81	0.61
1:C:85:ILE:HD11	1:D:84:TYR:HD2	1.65	0.61
1:E:87:SER:HB3	1:F:86:LEU:HG	1.82	0.61
2:I:985:GLU:HA	2:I:987:GLN:HE21	1.65	0.61
2:I:704:ILE:N	2:I:705:GLY:HA2	2.15	0.61
2:I:60:ARG:HA	2:I:63:LYS:HG3	1.83	0.61
2:I:199:LEU:HD21	2:I:265:SER:OG	2.01	0.61
2:J:135:LYS:HG3	2:J:138:LEU:HD21	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:413:ASN:HB2	2:I:419:LYS:HG2	1.83	0.61
2:J:406:MET:SD	2:J:465:ASP:HB2	2.41	0.61
1:D:132:LYS:HB3	1:D:137:ILE:O	2.01	0.60
1:E:12:GLU:HB3	1:E:17:TYR:HE2	1.64	0.60
2:J:1064:LEU:HB2	2:J:1148:PHE:HD1	1.65	0.60
1:G:1:MET:HE1	1:G:91:VAL:HG23	1.83	0.60
2:I:453:ASN:HD22	2:I:456:GLU:HB3	1.66	0.60
2:J:1000:ASN:HD22	2:J:1001:VAL:H	1.46	0.60
2:I:1126:LEU:HD13	2:I:1128:LYS:C	2.26	0.60
2:I:538:LEU:HD23	2:I:538:LEU:O	2.01	0.60
1:C:59:PHE:HB3	1:C:66:PHE:CE1	2.37	0.60
1:F:101:LEU:HD13	1:G:107:THR:HB	1.82	0.60
2:J:135:LYS:O	2:J:138:LEU:CD2	2.47	0.60
2:I:703:TYR:C	2:I:705:GLY:HA2	2.25	0.60
1:E:39:ASP:HB2	2:J:172:ARG:HD2	1.83	0.60
2:J:976:ARG:HB3	2:J:993:PHE:CZ	2.36	0.60
1:G:98:THR:HG22	1:G:98:THR:O	2.02	0.60
2:I:320:ILE:O	2:I:324:PHE:HB2	2.01	0.60
2:J:974:ASP:HA	2:J:977:PHE:CD2	2.33	0.60
1:C:59:PHE:HB3	1:C:66:PHE:HE1	1.65	0.59
2:I:67:PHE:HE2	2:I:116:ILE:HG22	1.66	0.59
2:I:215:LEU:HB2	2:I:219:GLU:HB2	1.84	0.59
2:J:862:ILE:HD11	2:J:871:LEU:HD22	1.83	0.59
1:A:92:TYR:HB2	1:B:92:TYR:HE2	1.68	0.59
2:I:771:HIS:CA	2:I:774:LEU:CD2	2.80	0.59
2:J:537:TYR:CE2	2:J:599:ILE:HD11	2.38	0.59
2:J:579:THR:H	2:J:585:THR:HG22	1.68	0.58
2:I:380:ILE:HG12	2:I:475:ILE:HD13	1.84	0.58
2:J:511:LYS:HD2	2:J:728:TYR:OH	2.03	0.58
2:J:525:VAL:HA	2:J:591:ALA:HB1	1.83	0.58
1:C:62:VAL:HG23	1:C:64:LYS:HG3	1.84	0.58
1:G:54:LEU:HD23	1:G:97:VAL:HB	1.85	0.58
2:I:380:ILE:HG21	2:I:966:GLY:HA2	1.86	0.58
2:I:376:LEU:HD22	2:I:475:ILE:HG23	1.85	0.58
2:I:827:PHE:HE1	2:I:884:ILE:HD11	1.69	0.58
2:I:845:LYS:HZ2	2:I:850:GLY:H	1.52	0.58
2:J:521:ASN:HD22	2:J:721:PHE:HB2	1.68	0.58
2:I:270:SER:OG	2:I:290:TYR:C	2.46	0.58
2:J:1020:HIS:HB3	2:J:1023:ASP:HB2	1.86	0.58
2:J:393:ILE:HG13	2:J:440:ASN:HB3	1.85	0.58
2:J:1023:ASP:HB3	2:J:1026:LYS:HE3	1.86	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:346:ARG:O	2:I:350:LYS:HB2	2.04	0.57
2:I:538:LEU:HD21	2:I:747:ILE:HA	1.85	0.57
2:I:956:LEU:HD13	2:I:1096:TYR:HD2	1.69	0.57
2:I:54:THR:HG22	2:I:55:LYS:H	1.69	0.57
1:G:10:THR:HB	1:G:17:TYR:HB2	1.86	0.57
1:E:12:GLU:HB3	1:E:17:TYR:CE2	2.38	0.57
1:E:107:THR:HG22	1:H:101:LEU:HB3	1.86	0.57
1:E:119:LYS:HG3	1:G:98:THR:HG21	1.86	0.57
2:J:219:GLU:O	2:J:222:LYS:HD2	2.05	0.57
2:I:251:VAL:HG13	2:I:260:LYS:HD2	1.86	0.57
2:I:867:MET:SD	2:I:1057:ILE:HD11	2.43	0.57
1:D:122:ASN:O	1:D:126:ILE:HG12	2.04	0.57
2:I:273:PHE:HA	2:I:277:TYR:HD2	1.69	0.57
2:I:955:GLY:O	2:I:959:ARG:HB2	2.05	0.57
2:J:112:VAL:O	2:J:116:ILE:HG13	2.05	0.57
2:J:726:LYS:O	2:J:730:GLN:HG2	2.04	0.57
1:B:19:CYS:HB2	1:B:33:TYR:HA	1.87	0.57
2:I:308:VAL:HG21	2:I:324:PHE:CE2	2.40	0.57
2:I:399:GLU:HB3	2:I:1058:PRO:HB3	1.87	0.57
2:I:979:LEU:HB3	2:I:989:ILE:HD13	1.86	0.57
1:D:50:GLU:HG3	1:D:97:VAL:HG11	1.87	0.56
2:J:232:GLY:HA3	2:J:236:ASP:HB3	1.87	0.56
2:J:630:LYS:O	2:J:631:ARG:HG2	2.04	0.56
2:I:395:GLU:HB3	2:I:433:LYS:HE2	1.85	0.56
1:D:5:TYR:CE1	1:D:69:PRO:HB3	2.41	0.56
1:F:88:VAL:HG12	1:F:93:GLU:HG2	1.87	0.56
1:H:62:VAL:HA	2:I:664:ILE:O	2.05	0.56
2:I:388:PHE:O	2:I:865:TYR:HE2	1.88	0.56
2:J:531:LYS:O	2:J:535:LEU:HD23	2.05	0.56
1:B:132:LYS:HG2	1:B:137:ILE:HD11	1.87	0.56
1:D:38:GLY:HA3	1:D:44:ALA:HB2	1.88	0.56
1:E:5:TYR:CD1	1:E:69:PRO:HB3	2.41	0.56
2:J:382:VAL:HG23	2:J:769:LEU:HD21	1.87	0.56
2:J:1009:VAL:HG13	2:J:1045:LEU:HB3	1.88	0.56
1:G:72:VAL:HG11	1:G:85:ILE:HD11	1.88	0.55
1:C:34:TYR:HB2	2:J:202:GLU:HG2	1.87	0.55
2:I:385:VAL:HA	2:I:388:PHE:HB3	1.88	0.55
1:B:26:PHE:CE1	1:B:32:ASN:HB2	2.40	0.55
1:C:62:VAL:CG2	1:C:64:LYS:HG3	2.37	0.55
2:I:424:GLU:HG3	2:I:427:LYS:HE2	1.88	0.55
1:B:5:TYR:CD1	1:B:69:PRO:HB3	2.42	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:625:LEU:O	2:J:629:ASP:HB2	2.06	0.55
2:I:771:HIS:O	2:I:774:LEU:CD2	2.55	0.55
2:J:1032:SER:HA	2:J:1035:ILE:HB	1.88	0.55
2:I:112:VAL:HG21	2:I:130:PHE:HZ	1.72	0.55
2:I:963:ARG:HA	2:I:963:ARG:HH11	1.71	0.55
1:B:119:LYS:HG3	1:C:135:LEU:HD22	1.87	0.55
1:F:111:TRP:O	1:F:115:LEU:HG	2.07	0.55
1:G:3:VAL:HG22	1:G:90:PRO:HD3	1.89	0.55
2:I:560:TYR:O	2:I:563:ILE:HG13	2.07	0.55
2:J:1086:MET:O	2:J:1090:VAL:HG23	2.06	0.55
2:J:424:GLU:O	2:J:428:ILE:HG13	2.06	0.55
2:J:413:ASN:HB3	2:J:416:GLY:O	2.06	0.54
2:J:1050:TYR:HD1	2:J:1055:ASN:HB3	1.72	0.54
2:J:1081:LEU:O	2:J:1085:VAL:HG23	2.06	0.54
1:E:1:MET:HE1	1:F:137:ILE:HD12	1.89	0.54
2:J:574:TRP:HZ2	2:J:592:GLN:NE2	2.06	0.54
2:I:359:GLU:N	2:I:360:ILE:HA	2.23	0.54
2:J:212:ILE:HG21	2:J:308:VAL:HG12	1.89	0.54
1:D:59:PHE:CE1	1:D:67:PRO:HD3	2.43	0.54
2:I:199:LEU:HD11	2:I:267:LEU:H	1.71	0.54
2:I:938:TYR:O	2:I:942:LYS:HB3	2.07	0.54
2:I:974:ASP:O	2:I:978:ARG:HG3	2.06	0.54
1:A:56:LEU:HD22	1:A:66:PHE:HE2	1.73	0.53
1:B:26:PHE:HB2	1:B:30:GLU:O	2.08	0.53
1:E:20:ILE:HD11	1:E:48:LEU:HD22	1.91	0.53
1:F:43:GLU:HG3	2:J:1079:ARG:HD2	1.89	0.53
2:I:974:ASP:HA	2:I:977:PHE:CD2	2.43	0.53
2:J:1112:ILE:HD12	2:J:1145:LYS:HG3	1.88	0.53
2:I:323:ILE:HD12	2:I:332:LEU:HD22	1.90	0.53
2:I:1126:LEU:CD1	2:I:1128:LYS:N	2.71	0.53
2:J:574:TRP:CE3	2:J:690:MET:HE1	2.44	0.53
2:J:960:ILE:O	2:J:964:LEU:HG	2.09	0.53
1:B:128:GLN:O	1:B:132:LYS:HG3	2.08	0.53
1:F:102:LYS:HB3	1:G:110:VAL:HG22	1.90	0.53
2:I:212:ILE:HD11	2:I:304:LEU:HD21	1.91	0.53
1:C:45:VAL:HA	1:C:48:LEU:HB2	1.90	0.53
2:I:994:ASN:OD1	2:I:997:ASN:N	2.42	0.53
1:A:4:PHE:CE2	1:B:41:MET:CE	2.83	0.53
2:J:244:ILE:O	2:J:248:ILE:HG13	2.08	0.53
2:J:470:SER:HB2	2:J:493:ILE:HD11	1.91	0.53
2:I:753:LEU:HD23	2:I:753:LEU:H	1.74	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:628:ASN:HA	2:J:633:LEU:HG	1.90	0.53
2:J:447:TYR:HB3	2:J:449:PHE:CZ	2.44	0.52
1:B:111:TRP:O	1:B:115:LEU:HG	2.10	0.52
1:E:32:ASN:OD1	2:J:310:LYS:HE3	2.10	0.52
1:G:59:PHE:O	1:G:62:VAL:HG22	2.09	0.52
2:J:774:LEU:HD11	2:J:803:LEU:HD13	1.91	0.52
2:I:40:MET:HE2	2:I:133:ASP:HB3	1.90	0.52
2:J:227:TYR:HE1	2:J:304:LEU:HD12	1.75	0.52
2:J:247:GLU:O	2:J:251:VAL:HG22	2.09	0.52
2:J:942:LYS:HE3	2:J:943:ASN:OD1	2.09	0.52
2:I:845:LYS:NZ	2:I:850:GLY:H	2.07	0.52
2:I:938:TYR:CZ	2:I:942:LYS:HD3	2.45	0.52
2:J:464:ILE:O	2:J:468:ILE:HG13	2.10	0.52
1:D:88:VAL:CB	1:D:93:GLU:HG3	2.40	0.52
1:D:120:ASN:HB2	2:I:183:ALA:HA	1.92	0.52
2:I:304:LEU:O	2:I:309:TYR:HB2	2.08	0.52
2:I:393:ILE:HG23	2:I:441:LEU:CD2	2.37	0.52
2:J:865:TYR:HB3	2:J:867:MET:HG3	1.90	0.52
1:E:39:ASP:HB2	2:J:172:ARG:CD	2.40	0.52
2:I:469:SER:O	2:I:473:HIS:CG	2.63	0.52
2:J:228:HIS:CE1	2:J:233:ARG:HE	2.28	0.52
2:J:537:TYR:CE2	2:J:541:THR:HG21	2.44	0.52
1:B:26:PHE:HD2	1:B:30:GLU:HB3	1.74	0.52
1:G:59:PHE:CE2	1:G:67:PRO:HD3	2.44	0.52
2:J:581:ASP:O	2:J:585:THR:HG23	2.10	0.52
1:D:120:ASN:OD1	2:I:182:SER:HB2	2.10	0.52
1:C:62:VAL:HA	1:C:137:ILE:HG22	1.92	0.52
1:B:50:GLU:O	1:B:54:LEU:HD12	2.09	0.51
1:C:1:MET:HE2	1:C:1:MET:HA	1.92	0.51
2:I:228:HIS:HB3	2:I:233:ARG:HB3	1.91	0.51
2:J:774:LEU:CD2	2:J:803:LEU:HD22	2.38	0.51
2:I:974:ASP:HA	2:I:977:PHE:HD2	1.75	0.51
2:J:212:ILE:O	2:J:218:LEU:HD11	2.11	0.51
2:J:299:GLU:HG3	2:J:337:LEU:HD21	1.91	0.51
2:J:961:LEU:HD23	2:J:1051:ILE:HG23	1.91	0.51
1:C:6:PRO:HB3	1:C:85:ILE:HG22	1.91	0.51
2:J:961:LEU:HD22	2:J:1054:PHE:HD1	1.74	0.51
1:A:11:LYS:HG3	1:A:82:TYR:HE2	1.76	0.51
2:I:308:VAL:HG21	2:I:324:PHE:CZ	2.46	0.51
2:I:388:PHE:O	2:I:865:TYR:CE2	2.63	0.51
2:I:542:ARG:HH11	2:I:750:GLY:HA2	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:574:TRP:HZ2	2:J:592:GLN:HE21	1.57	0.51
2:J:778:LYS:O	2:J:782:GLU:HG3	2.09	0.51
2:J:1050:TYR:CD1	2:J:1055:ASN:HB3	2.45	0.51
1:B:92:TYR:CZ	1:C:115:LEU:HD21	2.46	0.51
1:F:7:VAL:HG13	1:F:19:CYS:O	2.11	0.51
1:F:101:LEU:HA	1:G:109:PRO:HA	1.92	0.51
2:I:385:VAL:HG11	2:I:769:LEU:HD23	1.91	0.51
2:I:1128:LYS:O	2:I:1129:LYS:HG2	2.11	0.51
2:J:1035:ILE:HG23	2:J:1036:LYS:HD2	1.92	0.51
2:I:406:MET:SD	2:I:465:ASP:HB2	2.51	0.51
2:I:523:ALA:HB3	2:I:525:VAL:HG23	1.92	0.51
2:I:648:GLU:HB2	2:I:654:TYR:HD2	1.75	0.51
2:J:389:SER:O	2:J:393:ILE:CG2	2.57	0.51
2:J:112:VAL:HG13	2:J:126:GLU:OE1	2.10	0.51
2:I:428:ILE:HD13	2:I:437:VAL:HG11	1.93	0.50
2:I:873:LYS:HB2	2:I:1150:TYR:OH	2.11	0.50
2:J:584:LYS:O	2:J:588:ILE:HG13	2.10	0.50
1:G:87:SER:HB3	1:H:86:LEU:HD23	1.92	0.50
2:I:1039:LYS:O	2:I:1042:LYS:HG3	2.11	0.50
2:J:245:TYR:HA	2:J:248:ILE:HD12	1.94	0.50
1:A:50:GLU:O	1:A:54:LEU:HD12	2.11	0.50
1:D:128:GLN:HG2	1:D:132:LYS:HE2	1.93	0.50
1:E:112:LEU:HD12	1:E:115:LEU:HD12	1.92	0.50
2:I:62:GLY:HA2	2:I:65:LYS:HG2	1.92	0.50
2:I:897:ILE:HG12	2:I:901:HIS:HB2	1.92	0.50
2:J:200:TYR:HB3	2:J:205:ILE:HD11	1.92	0.50
2:J:294:HIS:O	2:J:298:ILE:HG13	2.12	0.50
2:I:287:ASN:HA	2:I:290:TYR:CE1	2.45	0.50
2:J:471:ILE:O	2:J:475:ILE:HG12	2.11	0.50
2:J:574:TRP:HE3	2:J:690:MET:HE1	1.76	0.50
2:J:586:LYS:O	2:J:590:ASP:HB2	2.12	0.50
1:A:111:TRP:CZ3	1:A:112:LEU:CD1	2.95	0.50
2:I:298:ILE:O	2:I:302:GLN:HG2	2.12	0.50
2:I:823:LYS:HG3	2:I:868:LEU:CD2	2.41	0.50
2:I:959:ARG:CG	2:I:1092:ILE:HG21	2.41	0.50
2:I:1076:SER:HA	2:I:1082:LYS:HD2	1.93	0.50
1:D:10:THR:O	1:D:17:TYR:HB2	2.11	0.50
1:E:7:VAL:HG12	1:E:20:ILE:HG13	1.93	0.50
1:H:93:GLU:O	1:H:96:LYS:HG2	2.12	0.50
2:I:963:ARG:NH1	2:I:966:GLY:HA3	2.26	0.50
2:J:648:GLU:OE1	2:J:654:TYR:HA	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:104:LYS:HG3	1:H:108:ILE:HD11	1.93	0.50
1:F:124:SER:O	1:F:128:GLN:HG3	2.12	0.50
1:H:59:PHE:HE2	1:H:67:PRO:HD3	1.77	0.50
2:I:473:HIS:O	2:I:477:HIS:N	2.43	0.50
2:J:480:LEU:HB3	2:J:973:ARG:HH22	1.77	0.50
2:J:495:PRO:HA	2:J:761:MET:HE1	1.93	0.50
1:C:88:VAL:CG1	1:D:87:SER:HB3	2.42	0.49
1:C:92:TYR:HB2	1:D:92:TYR:CE2	2.47	0.49
2:I:284:ASN:H	2:I:287:ASN:ND2	2.09	0.49
2:I:771:HIS:O	2:I:774:LEU:HD21	2.12	0.49
2:I:845:LYS:HD3	2:I:849:ASP:HA	1.94	0.49
2:J:490:PHE:HB3	2:J:493:ILE:HD12	1.94	0.49
2:J:753:LEU:HD23	2:J:753:LEU:H	1.76	0.49
2:J:826:ASP:OD1	2:J:881:LYS:HD3	2.12	0.49
1:A:4:PHE:HE2	1:B:41:MET:HE1	1.70	0.49
1:B:131:LEU:HD13	1:C:112:LEU:HD21	1.94	0.49
1:F:92:TYR:HE1	1:G:115:LEU:HD11	1.77	0.49
2:I:385:VAL:HG13	2:I:388:PHE:CD2	2.47	0.49
2:I:973:ARG:HH12	2:I:976:ARG:HD3	1.77	0.49
2:J:521:ASN:ND2	2:J:721:PHE:HB2	2.27	0.49
2:J:769:LEU:HD22	2:J:773:GLU:HB3	1.92	0.49
2:J:1068:LEU:O	2:J:1072:ARG:HG2	2.12	0.49
1:E:60:LEU:HD23	1:E:94:VAL:HG11	1.95	0.49
2:J:194:GLU:O	2:J:198:LYS:HB2	2.13	0.49
1:C:61:ASP:O	1:C:137:ILE:HB	2.13	0.49
2:J:480:LEU:HD22	2:J:973:ARG:HH12	1.77	0.49
2:J:135:LYS:CA	2:J:138:LEU:HD22	2.19	0.49
2:J:870:LEU:HD22	2:J:1057:ILE:HD12	1.95	0.49
2:J:537:TYR:HE2	2:J:599:ILE:HD11	1.77	0.49
1:G:23:PHE:CZ	1:G:67:PRO:HG3	2.47	0.49
1:D:45:VAL:HB	1:D:48:LEU:HD12	1.94	0.49
1:H:119:LYS:N	1:H:119:LYS:HD2	2.27	0.49
2:J:220:LYS:HD2	2:J:220:LYS:H	1.77	0.49
2:J:388:PHE:HE1	2:J:864:LYS:HB2	1.78	0.49
2:I:323:ILE:O	2:I:329:LEU:HD12	2.12	0.48
2:I:724:PHE:CZ	2:I:734:ILE:HB	2.48	0.48
2:I:294:HIS:O	2:I:298:ILE:HG13	2.12	0.48
2:I:67:PHE:CE2	2:I:116:ILE:HG22	2.48	0.48
2:J:402:ILE:HD13	2:J:406:MET:HG3	1.96	0.48
1:D:116:ALA:O	1:D:123:PHE:HE1	1.97	0.48
2:I:392:ASN:HB2	2:I:865:TYR:CZ	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:903:MET:O	2:J:907:LEU:HD23	2.14	0.48
2:J:1085:VAL:O	2:J:1089:VAL:HG23	2.12	0.48
1:B:26:PHE:HA	2:J:49:PRO:O	2.13	0.48
1:D:109:PRO:HG2	1:D:112:LEU:HB2	1.94	0.48
2:I:479:ASN:HB2	2:I:973:ARG:NE	2.28	0.48
2:I:952:LEU:HD23	2:I:952:LEU:O	2.13	0.48
2:I:968:THR:O	2:I:972:GLU:HG3	2.13	0.48
2:J:385:VAL:HG13	2:J:388:PHE:CD2	2.46	0.48
2:J:1078:ASP:HB3	2:J:1081:LEU:HD12	1.95	0.48
1:C:112:LEU:HD12	1:C:115:LEU:HD12	1.95	0.48
1:D:32:ASN:ND2	1:D:35:ALA:HB2	2.28	0.48
1:G:36:THR:HG21	1:G:48:LEU:HG	1.96	0.48
2:I:903:MET:HG2	2:I:907:LEU:HD23	1.94	0.48
2:J:1007:GLN:O	2:J:1011:LYS:HE2	2.14	0.48
1:A:45:VAL:HA	1:A:48:LEU:HB2	1.95	0.48
1:B:103:LYS:N	1:B:103:LYS:HD2	2.28	0.48
1:E:129:LYS:NZ	1:H:133:LYS:HD3	2.29	0.48
1:G:48:LEU:O	1:G:52:LEU:HD13	2.13	0.48
2:I:1064:LEU:HD11	2:I:1147:MET:HG2	1.95	0.48
2:J:942:LYS:O	2:J:946:GLU:HB2	2.14	0.48
2:J:1090:VAL:HG12	2:J:1094:LYS:NZ	2.28	0.48
1:D:51:THR:HG22	1:D:55:HIS:ND1	2.29	0.48
1:G:87:SER:HB3	1:H:86:LEU:CD2	2.44	0.48
1:H:7:VAL:HG22	1:H:84:TYR:O	2.14	0.48
2:I:402:ILE:HD11	2:I:406:MET:SD	2.54	0.48
2:I:504:GLN:HA	2:I:507:ILE:HG22	1.96	0.48
2:I:600:TYR:O	2:I:604:PHE:HB3	2.14	0.48
1:A:9:VAL:HG13	1:A:17:TYR:O	2.13	0.47
1:A:111:TRP:HE1	1:D:99:ASN:HA	1.79	0.47
1:D:37:PHE:O	2:I:66:LYS:HD3	2.13	0.47
2:J:135:LYS:C	2:J:138:LEU:CD2	2.87	0.47
2:J:514:LEU:HD13	2:J:728:TYR:CE2	2.49	0.47
1:F:59:PHE:HD2	1:F:67:PRO:HD3	1.79	0.47
2:I:734:ILE:HG22	2:I:735:LYS:H	1.78	0.47
1:B:71:LYS:O	1:B:75:VAL:HG23	2.15	0.47
2:I:1047:ILE:HG13	2:I:1050:TYR:HB3	1.95	0.47
1:C:85:ILE:CD1	1:D:84:TYR:HD2	2.26	0.47
2:I:775:THR:HA	2:I:778:LYS:HD3	1.97	0.47
2:J:206:ALA:O	2:J:209:VAL:HG22	2.14	0.47
2:J:485:LYS:HG2	2:J:792:ALA:HB1	1.96	0.47
2:J:544:GLU:HA	2:J:545:PHE:HB2	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:117:GLN:HG2	1:D:123:PHE:CZ	2.50	0.47
2:J:264:MET:HE3	2:J:269:LYS:HG3	1.96	0.47
1:A:6:PRO:HG2	1:A:21:VAL:HG21	1.95	0.47
1:D:9:VAL:HG13	1:D:17:TYR:O	2.15	0.47
1:H:37:PHE:CZ	2:I:1083:ASN:HA	2.40	0.47
2:I:377:ARG:HD2	2:I:963:ARG:HH21	1.79	0.47
2:I:661:LEU:HB3	2:I:677:TYR:CE2	2.50	0.47
2:I:691:THR:O	2:I:695:ASN:HB2	2.14	0.47
2:I:1078:ASP:HB3	2:I:1081:LEU:HD12	1.97	0.47
1:A:111:TRP:CE3	1:A:112:LEU:CD1	2.98	0.47
1:E:20:ILE:HG21	1:E:23:PHE:HD2	1.79	0.47
2:I:586:LYS:O	2:I:590:ASP:HB2	2.14	0.47
1:G:87:SER:CB	1:H:86:LEU:CD2	2.90	0.47
2:I:74:TYR:CD1	2:I:83:LYS:HB2	2.50	0.47
2:I:284:ASN:H	2:I:287:ASN:HD21	1.62	0.47
2:I:1126:LEU:HD12	2:I:1128:LYS:H	1.80	0.47
2:J:212:ILE:HG13	2:J:213:GLU:H	1.80	0.47
1:G:84:TYR:CD2	1:H:83:LEU:HD23	2.50	0.47
2:J:868:LEU:HD23	2:J:868:LEU:O	2.15	0.47
1:A:130:ALA:HB2	1:D:130:ALA:CB	2.45	0.46
1:E:11:LYS:HE2	1:E:14:GLY:HA2	1.98	0.46
2:I:330:LYS:H	2:I:330:LYS:HG3	1.57	0.46
2:I:596:LEU:HA	2:I:599:ILE:HD12	1.97	0.46
1:G:122:ASN:HB3	1:G:125:GLN:HB2	1.97	0.46
2:I:942:LYS:O	2:I:946:GLU:HB2	2.15	0.46
2:I:956:LEU:HD13	2:I:1096:TYR:CD2	2.48	0.46
2:J:630:LYS:HA	2:J:630:LYS:HD3	1.64	0.46
2:J:850:GLY:HA2	2:J:852:ASN:H	1.80	0.46
2:I:453:ASN:ND2	2:I:456:GLU:HB3	2.30	0.46
2:I:512:LEU:O	2:I:516:ILE:HG12	2.15	0.46
2:I:595:LEU:O	2:I:599:ILE:HG13	2.16	0.46
2:J:490:PHE:CD2	2:J:761:MET:HB2	2.51	0.46
2:J:929:LYS:O	2:J:933:GLU:HG2	2.16	0.46
1:A:56:LEU:HD22	1:A:66:PHE:CE2	2.49	0.46
1:E:52:LEU:O	1:E:56:LEU:HG	2.15	0.46
2:I:137:LYS:HA	2:I:137:LYS:HD2	1.71	0.46
2:I:211:GLU:CB	2:I:222:LYS:HE3	2.44	0.46
2:J:40:MET:HG3	2:J:134:ILE:HD13	1.98	0.46
2:I:531:LYS:O	2:I:534:ILE:HG22	2.15	0.46
2:I:731:ASN:HB3	2:I:734:ILE:HD11	1.98	0.46
2:I:964:LEU:O	2:I:968:THR:HG23	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:109:PRO:HA	1:D:100:ALA:O	2.15	0.46
1:D:92:TYR:O	1:D:96:LYS:HG3	2.16	0.46
2:I:997:ASN:HB3	2:I:1004:LYS:O	2.16	0.46
2:I:1075:LEU:HD23	2:I:1077:TYR:HE1	1.81	0.46
1:B:88:VAL:HB	1:B:93:GLU:HG3	1.96	0.46
2:I:401:ASP:HB3	2:I:1053:ALA:HB3	1.98	0.46
2:I:842:ASP:CB	2:I:847:TYR:HB2	2.45	0.46
2:I:1126:LEU:HD12	2:I:1126:LEU:C	2.41	0.46
2:J:441:LEU:HD23	2:J:445:TYR:CD2	2.51	0.46
1:E:89:ASP:HB2	1:F:49:ARG:NH2	2.31	0.45
2:I:839:LYS:HA	2:I:848:PHE:HB2	1.99	0.45
2:J:232:GLY:O	2:J:237:LYS:HB2	2.16	0.45
2:J:1017:LYS:HG2	2:J:1027:ILE:HG23	1.97	0.45
1:B:5:TYR:CE1	1:B:69:PRO:HB3	2.51	0.45
1:F:59:PHE:CD2	1:F:67:PRO:HD3	2.51	0.45
2:I:470:SER:OG	2:I:490:PHE:HA	2.15	0.45
2:I:659:GLN:HE21	2:I:663:MET:HG3	1.81	0.45
1:F:132:LYS:HB3	1:F:138:GLU:HA	1.98	0.45
2:I:303:LEU:HD12	2:I:333:ILE:HG12	1.98	0.45
2:I:535:LEU:O	2:I:539:LYS:HG3	2.17	0.45
2:J:232:GLY:HA3	2:J:236:ASP:CB	2.46	0.45
2:J:930:GLN:HA	2:J:933:GLU:HG2	1.98	0.45
1:A:89:ASP:HB2	1:B:49:ARG:NH2	2.32	0.45
1:D:96:LYS:HB2	1:D:96:LYS:HE3	1.80	0.45
1:F:99:ASN:HA	1:G:111:TRP:HE1	1.81	0.45
2:I:662:TYR:CE1	2:I:678:ILE:HG13	2.52	0.45
2:I:1036:LYS:HA	2:I:1039:LYS:HB3	1.99	0.45
2:J:606:ASN:O	2:J:610:SER:HB2	2.17	0.45
1:E:56:LEU:HD22	1:E:66:PHE:HE2	1.81	0.45
2:I:232:GLY:HA3	2:I:236:ASP:HB2	1.98	0.45
2:I:376:LEU:O	2:I:380:ILE:HG13	2.17	0.45
2:I:900:ASN:HA	2:I:903:MET:HB3	1.99	0.45
1:A:8:VAL:HB	1:A:19:CYS:SG	2.57	0.45
1:C:122:ASN:O	1:C:126:ILE:HG12	2.17	0.45
2:I:973:ARG:O	2:I:976:ARG:HG2	2.15	0.45
2:I:1047:ILE:HG13	2:I:1050:TYR:CB	2.47	0.45
2:I:1126:LEU:HD12	2:I:1127:LYS:C	2.42	0.45
2:J:911:TYR:CD2	2:J:1123:LEU:HD22	2.51	0.45
1:B:51:THR:HG22	1:B:55:HIS:CE1	2.52	0.45
1:B:98:THR:O	1:B:99:ASN:C	2.60	0.45
1:E:132:LYS:HB3	1:E:137:ILE:O	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:865:TYR:C	2:I:867:MET:H	2.25	0.45
2:I:1057:ILE:N	2:I:1058:PRO:HD2	2.32	0.45
2:J:574:TRP:CZ2	2:J:592:GLN:NE2	2.85	0.45
1:A:111:TRP:CE3	1:A:112:LEU:HD12	2.52	0.45
1:C:77:LEU:HD22	1:C:81:GLN:HB3	1.98	0.45
1:H:128:GLN:O	1:H:132:LYS:HG3	2.16	0.45
2:I:254:MET:HA	2:I:257:LEU:HB2	1.99	0.45
2:I:721:PHE:CZ	2:I:740:ILE:HD11	2.52	0.45
1:E:131:LEU:O	1:E:135:LEU:HG	2.17	0.44
1:F:91:VAL:HG22	2:J:150:LYS:HA	1.99	0.44
1:H:5:TYR:CE1	1:H:69:PRO:HA	2.53	0.44
2:I:1115:LEU:HD12	2:I:1145:LYS:HB2	1.99	0.44
2:J:742:GLU:HG2	2:J:745:ARG:NH2	2.28	0.44
2:I:521:ASN:OD1	2:I:718:LYS:HD3	2.17	0.44
2:I:822:GLY:O	2:I:831:LYS:HB3	2.17	0.44
1:A:50:GLU:CD	1:A:97:VAL:HG21	2.42	0.44
2:I:826:ASP:HB3	2:I:881:LYS:HD3	1.99	0.44
2:J:135:LYS:CG	2:J:138:LEU:HD21	2.46	0.44
2:J:589:ILE:O	2:J:593:ILE:HG13	2.18	0.44
1:H:36:THR:HG22	1:H:37:PHE:H	1.82	0.44
2:I:211:GLU:O	2:I:222:LYS:HE3	2.18	0.44
2:I:385:VAL:O	2:I:388:PHE:HB3	2.18	0.44
2:I:891:SER:HA	2:I:894:LYS:HG3	1.99	0.44
2:J:273:PHE:HE2	2:J:283:LEU:HD21	1.82	0.44
2:J:1024:GLU:HA	2:J:1026:LYS:N	2.30	0.44
2:J:1047:ILE:HD11	2:J:1067:VAL:HG22	2.00	0.44
1:D:51:THR:HG22	1:D:55:HIS:CE1	2.53	0.44
2:J:964:LEU:HD13	2:J:1051:ILE:HD13	1.98	0.44
1:G:111:TRP:CD1	1:G:111:TRP:H	2.36	0.44
2:I:916:LYS:HB2	2:I:916:LYS:HE3	1.74	0.44
2:J:228:HIS:ND1	2:J:233:ARG:HG3	2.33	0.44
1:C:85:ILE:HD11	1:D:84:TYR:CD2	2.49	0.44
1:D:20:ILE:HD11	1:D:48:LEU:HD22	1.98	0.44
1:G:17:TYR:HD2	1:G:34:TYR:HD1	1.65	0.44
2:I:859:PHE:CD2	2:I:863:LYS:HB2	2.53	0.44
2:J:749:LEU:HD23	2:J:752:ILE:HD11	2.00	0.44
2:J:1123:LEU:HB3	2:J:1126:LEU:HD12	1.99	0.44
1:H:23:PHE:CG	1:H:55:HIS:CD2	3.05	0.44
2:I:42:LEU:HD12	2:I:71:LYS:HB2	2.00	0.44
2:I:1055:ASN:C	2:I:1058:PRO:HD2	2.43	0.44
2:J:574:TRP:HB2	2:J:690:MET:HE3	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:38:GLY:HA3	1:D:44:ALA:CB	2.47	0.43
2:I:398:ASN:ND2	2:I:400:ASN:HB2	2.32	0.43
1:A:127:LEU:HA	1:D:127:LEU:HD13	2.00	0.43
1:C:85:ILE:HG12	1:D:84:TYR:HA	2.00	0.43
1:D:119:LYS:HD2	1:D:119:LYS:N	2.32	0.43
2:I:94:TYR:HD1	2:I:118:LEU:HD23	1.83	0.43
2:I:112:VAL:HG21	2:I:130:PHE:CZ	2.52	0.43
2:I:825:LEU:O	2:I:831:LYS:HA	2.17	0.43
2:I:857:ARG:HE	2:I:857:ARG:HB2	1.61	0.43
2:J:268:LYS:O	2:J:272:VAL:HG23	2.17	0.43
2:J:889:LYS:HA	2:J:892:ASN:HD21	1.83	0.43
2:I:1140:LEU:O	2:I:1144:VAL:HG23	2.17	0.43
2:J:626:ASN:C	2:J:626:ASN:HD22	2.26	0.43
2:J:773:GLU:O	2:J:773:GLU:HG3	2.19	0.43
2:J:1112:ILE:HD11	2:J:1148:PHE:HB2	1.98	0.43
1:A:71:LYS:HD2	1:A:71:LYS:N	2.33	0.43
1:E:37:PHE:HB3	2:J:302:GLN:HB3	2.00	0.43
2:I:273:PHE:HA	2:I:277:TYR:CD2	2.52	0.43
2:I:570:LEU:HD13	2:I:570:LEU:HA	1.91	0.43
2:J:484:GLY:HA3	2:J:793:PHE:HZ	1.83	0.43
1:B:52:LEU:O	1:B:56:LEU:HG	2.18	0.43
2:I:997:ASN:ND2	2:I:1011:LYS:HE2	2.34	0.43
2:J:484:GLY:HA3	2:J:793:PHE:CZ	2.53	0.43
2:J:560:TYR:O	2:J:563:ILE:HG13	2.18	0.43
1:B:26:PHE:CD2	1:B:30:GLU:HB3	2.52	0.43
1:C:85:ILE:CG1	1:D:84:TYR:HA	2.48	0.43
1:E:78:LYS:HE3	1:E:78:LYS:HB3	1.62	0.43
2:I:389:SER:HB3	2:I:768:LEU:HB3	1.99	0.43
2:I:503:PHE:O	2:I:507:ILE:HB	2.19	0.43
2:I:538:LEU:CD2	2:I:746:GLU:O	2.66	0.43
2:J:850:GLY:HA2	2:J:852:ASN:N	2.34	0.43
2:J:1008:ILE:H	2:J:1008:ILE:HG13	1.69	0.43
1:C:92:TYR:CE2	1:D:89:ASP:HB2	2.54	0.43
2:I:1057:ILE:HD12	2:I:1057:ILE:HA	1.85	0.43
2:J:973:ARG:O	2:J:976:ARG:HG2	2.18	0.43
1:E:87:SER:HB2	1:F:84:TYR:OH	2.18	0.43
1:G:87:SER:HB2	1:H:86:LEU:CD2	2.47	0.43
1:H:111:TRP:O	1:H:115:LEU:HG	2.19	0.43
2:I:627:LYS:HD3	2:I:638:TYR:CE1	2.53	0.43
2:J:348:CYS:HA	2:J:351:TYR:CD2	2.54	0.43
2:J:460:PHE:HE1	2:J:499:SER:HB3	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:1123:LEU:HB3	2:J:1126:LEU:CD1	2.49	0.43
1:C:6:PRO:HA	1:C:85:ILE:HG22	2.01	0.43
1:D:21:VAL:CG2	1:D:22:ASP:H	2.23	0.43
1:G:128:GLN:O	1:G:132:LYS:HG3	2.18	0.43
2:J:309:TYR:CD2	2:J:310:LYS:HE2	2.49	0.43
2:J:545:PHE:O	2:J:798:GLU:HG3	2.19	0.43
2:J:769:LEU:HD23	2:J:769:LEU:HA	1.75	0.43
2:J:1057:ILE:N	2:J:1058:PRO:HD2	2.34	0.43
2:I:254:MET:O	2:I:258:ILE:HG13	2.19	0.43
1:A:128:GLN:O	1:A:132:LYS:HG3	2.19	0.42
1:G:89:ASP:HB2	1:H:49:ARG:NH1	2.34	0.42
2:I:450:ASN:HB3	2:I:453:ASN:OD1	2.19	0.42
2:J:240:PHE:O	2:J:244:ILE:HB	2.19	0.42
1:B:111:TRP:CE3	1:C:61:ASP:OD2	2.72	0.42
2:I:905:GLU:O	2:I:909:ARG:HG3	2.19	0.42
2:I:992:ILE:HG22	2:I:1008:ILE:HG23	2.00	0.42
1:E:5:TYR:HD1	1:E:69:PRO:HB3	1.83	0.42
1:F:20:ILE:H	1:F:24:ASP:HB2	1.85	0.42
1:F:110:VAL:HG22	1:G:102:LYS:HB2	2.01	0.42
1:H:47:ASN:HB2	2:I:1083:ASN:HD22	1.84	0.42
2:I:370:ARG:C	2:I:370:ARG:HD3	2.44	0.42
2:J:460:PHE:CE1	2:J:499:SER:HB3	2.55	0.42
2:I:223:ILE:O	2:I:223:ILE:HG22	2.19	0.42
2:I:476:VAL:O	2:I:973:ARG:NH1	2.52	0.42
2:J:545:PHE:CD1	2:J:802:LEU:HD23	2.55	0.42
2:J:1143:LEU:HD23	2:J:1143:LEU:O	2.20	0.42
1:F:21:VAL:HG23	1:F:22:ASP:N	2.35	0.42
1:G:45:VAL:HA	1:G:48:LEU:HB2	2.01	0.42
2:I:827:PHE:CD2	2:I:837:GLU:HG3	2.55	0.42
2:J:350:LYS:HE2	2:J:350:LYS:HB3	1.91	0.42
2:J:1069:GLU:HB2	2:J:1110:ILE:CG1	2.42	0.42
1:B:41:MET:SD	1:B:41:MET:C	3.02	0.42
2:I:503:PHE:CD2	2:I:755:TYR:HB2	2.55	0.42
2:I:544:GLU:HG3	2:I:602:GLY:HA2	1.99	0.42
2:I:857:ARG:O	2:I:860:TYR:HD1	2.02	0.42
2:J:519:GLN:OE1	2:J:808:ASN:HA	2.20	0.42
1:D:6:PRO:HA	1:D:85:ILE:HA	2.01	0.42
2:J:567:LYS:HG3	2:J:572:ILE:HG13	2.01	0.42
2:I:371:GLN:O	2:I:375:PHE:HB2	2.20	0.42
2:I:1008:ILE:H	2:I:1008:ILE:HG13	1.63	0.42
2:J:40:MET:HE2	2:J:134:ILE:HD13	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:212:ILE:HD13	2:J:308:VAL:CG1	2.49	0.42
2:J:680:PHE:CE2	2:J:684:ILE:HD11	2.54	0.42
1:A:24:ASP:O	1:A:32:ASN:HB3	2.20	0.42
1:A:50:GLU:OE1	1:A:54:LEU:HD11	2.20	0.42
1:E:26:PHE:HD1	2:J:311:ARG:HH21	1.68	0.42
1:G:121:LEU:HB3	1:G:126:ILE:HD11	2.01	0.42
2:I:209:VAL:O	2:I:212:ILE:HB	2.20	0.42
2:I:304:LEU:HA	2:I:304:LEU:HD23	1.82	0.42
2:I:525:VAL:HG12	2:I:529:LEU:HD12	2.01	0.42
2:I:720:GLU:O	2:I:723:LYS:HB3	2.20	0.42
2:I:1073:LYS:HA	2:I:1073:LYS:HD2	1.90	0.42
2:I:1101:THR:C	2:I:1102:PHE:HD1	2.28	0.42
1:B:86:LEU:HD23	1:B:86:LEU:HA	1.94	0.41
1:D:106:LEU:HD23	1:D:106:LEU:HA	1.68	0.41
1:G:117:GLN:C	1:G:120:ASN:H	2.27	0.41
2:I:1035:ILE:HD11	2:I:1046:TYR:OH	2.20	0.41
2:J:254:MET:HE3	2:J:273:PHE:HD1	1.85	0.41
2:J:693:LEU:HG	2:J:698:ARG:O	2.19	0.41
2:J:827:PHE:HE2	2:J:837:GLU:O	2.03	0.41
1:D:52:LEU:HD22	1:D:86:LEU:HD13	2.01	0.41
1:E:111:TRP:CD1	1:E:111:TRP:H	2.37	0.41
2:I:527:ARG:HG3	2:I:714:LEU:O	2.20	0.41
2:I:771:HIS:NE2	2:I:807:ASN:HB3	2.35	0.41
2:J:109:ASN:HB3	2:J:130:PHE:CE1	2.55	0.41
2:J:409:LYS:O	2:J:421:VAL:HG22	2.19	0.41
1:E:53:GLY:HA3	1:E:97:VAL:HG21	2.01	0.41
1:H:121:LEU:HD23	1:H:121:LEU:HA	1.88	0.41
2:I:274:TYR:O	2:I:278:LEU:HG	2.19	0.41
2:I:340:LYS:HE3	2:I:340:LYS:HB2	1.65	0.41
2:I:600:TYR:O	2:I:605:LEU:HD12	2.20	0.41
1:A:88:VAL:HG12	1:B:87:SER:HB3	2.02	0.41
1:D:37:PHE:H	2:I:66:LYS:NZ	2.18	0.41
1:G:76:LYS:HB2	1:G:76:LYS:HE2	1.79	0.41
2:J:388:PHE:HB2	2:J:865:TYR:CE1	2.56	0.41
2:J:1001:VAL:HG12	2:J:1002:LYS:HG3	2.01	0.41
1:E:60:LEU:O	1:E:63:ARG:HD3	2.20	0.41
1:F:104:LYS:HE2	1:G:113:ASP:OD2	2.20	0.41
1:G:89:ASP:OD1	1:G:90:PRO:HD2	2.21	0.41
2:I:254:MET:HE2	2:I:277:TYR:CE2	2.56	0.41
2:I:460:PHE:HE1	2:I:499:SER:OG	2.01	0.41
2:J:536:ASN:HA	2:J:539:LYS:HE2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:820:GLU:HA	2:J:823:LYS:HE2	2.01	0.41
2:J:1065:LEU:HA	2:J:1068:LEU:HB2	2.02	0.41
1:H:7:VAL:HG12	1:H:20:ILE:HG23	2.02	0.41
1:H:41:MET:O	1:H:45:VAL:HG22	2.21	0.41
2:I:904:GLN:HA	2:I:928:TYR:HE1	1.85	0.41
2:I:1126:LEU:HD12	2:I:1127:LYS:CA	2.49	0.41
2:J:774:LEU:HD11	2:J:803:LEU:CD1	2.51	0.41
1:D:20:ILE:HB	1:D:24:ASP:CG	2.46	0.41
1:E:62:VAL:HG23	1:E:64:LYS:H	1.85	0.41
1:G:124:SER:O	1:G:128:GLN:HG3	2.21	0.41
2:I:133:ASP:O	2:I:136:LYS:HB3	2.20	0.41
2:I:989:ILE:HA	2:I:992:ILE:HD12	2.02	0.41
2:J:865:TYR:C	2:J:867:MET:H	2.29	0.41
1:B:128:GLN:HA	1:B:131:LEU:HD12	2.02	0.41
1:G:1:MET:HE3	1:G:1:MET:HB3	1.92	0.41
2:J:991:GLU:HB3	2:J:1000:ASN:OD1	2.20	0.41
1:B:138:GLU:H	1:B:138:GLU:HG2	1.61	0.41
1:C:8:VAL:HB	1:C:19:CYS:SG	2.61	0.41
1:D:12:GLU:O	1:D:17:TYR:HE1	2.04	0.41
1:D:122:ASN:HB3	1:D:125:GLN:HB3	2.03	0.41
1:E:3:VAL:HG22	1:E:90:PRO:HD3	2.01	0.41
1:E:49:ARG:HD2	1:F:2:ASP:OD2	2.21	0.41
1:G:6:PRO:HB3	1:G:85:ILE:HG12	2.03	0.41
1:G:60:LEU:HD22	1:G:94:VAL:HG21	2.03	0.41
2:J:480:LEU:HD22	2:J:973:ARG:NH1	2.35	0.41
2:J:512:LEU:O	2:J:516:ILE:HG13	2.21	0.41
1:C:88:VAL:HG11	1:D:87:SER:HB3	2.02	0.41
1:D:89:ASP:HB3	1:D:92:TYR:CB	2.43	0.41
2:I:267:LEU:HD11	2:I:297:GLU:HG3	2.01	0.41
1:F:71:LYS:HA	1:F:71:LYS:HD2	1.91	0.40
2:I:426:ASP:HB3	2:I:430:ASN:OD1	2.22	0.40
2:I:827:PHE:CE1	2:I:884:ILE:HD11	2.53	0.40
2:I:834:ASP:HB3	2:I:837:GLU:OE1	2.21	0.40
2:I:1001:VAL:HG23	2:I:1002:LYS:H	1.84	0.40
1:A:132:LYS:HG2	1:A:137:ILE:HD11	2.03	0.40
1:C:9:VAL:HG13	1:C:17:TYR:O	2.21	0.40
1:C:26:PHE:HE1	1:C:32:ASN:HB2	1.85	0.40
2:I:382:VAL:O	2:I:385:VAL:HB	2.21	0.40
2:I:943:ASN:CG	2:I:948:ASN:HB3	2.46	0.40
1:G:133:LYS:HB2	1:G:133:LYS:HE3	1.84	0.40
2:I:938:TYR:OH	2:I:942:LYS:HD3	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:685:PHE:O	2:J:689:PHE:HB2	2.21	0.40
2:J:1104:ILE:HG22	2:J:1105:GLY:O	2.22	0.40
1:A:1:MET:O	1:A:90:PRO:HD2	2.21	0.40
1:C:71:LYS:HD3	1:C:71:LYS:HA	1.81	0.40
1:D:7:VAL:HG22	1:D:84:TYR:HD1	1.86	0.40
1:E:2:ASP:OD1	1:F:49:ARG:HD2	2.20	0.40
2:I:272:VAL:HG12	2:I:277:TYR:CE2	2.57	0.40
2:I:763:TYR:CZ	2:I:767:LYS:HE2	2.57	0.40
2:J:669:GLN:H	2:J:669:GLN:HG2	1.66	0.40
2:J:1017:LYS:HB2	2:J:1017:LYS:HE3	1.84	0.40
1:B:59:PHE:CE2	1:B:67:PRO:HB3	2.56	0.40
1:B:119:LYS:O	1:B:120:ASN:C	2.64	0.40
1:H:59:PHE:CE2	1:H:67:PRO:HD3	2.56	0.40
2:I:137:LYS:O	2:I:141:ILE:HD13	2.21	0.40
2:I:283:LEU:HD23	2:I:283:LEU:HA	1.91	0.40
2:J:389:SER:HA	2:J:392:ASN:OD1	2.20	0.40
2:J:581:ASP:HB3	2:J:584:LYS:HB2	2.03	0.40

There are no symmetry-related clashes.

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	136/140 (97%)	127 (93%)	9 (7%)	0	100	100
1	B	136/140 (97%)	128 (94%)	5 (4%)	3 (2%)	5	31
1	C	136/140 (97%)	125 (92%)	10 (7%)	1 (1%)	18	50
1	D	136/140 (97%)	132 (97%)	2 (2%)	2 (2%)	8	36
1	E	136/140 (97%)	130 (96%)	5 (4%)	1 (1%)	18	50
1	F	136/140 (97%)	130 (96%)	5 (4%)	1 (1%)	18	50
1	G	136/140 (97%)	133 (98%)	3 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	H	138/140 (99%)	130 (94%)	8 (6%)	0	100	100
2	I	1077/1159 (93%)	1026 (95%)	49 (4%)	2 (0%)	43	72
2	J	1061/1159 (92%)	1004 (95%)	56 (5%)	1 (0%)	48	78
All	All	3228/3438 (94%)	3065 (95%)	152 (5%)	11 (0%)	36	65

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	120	ASN
1	B	136	GLY
1	E	120	ASN
1	F	120	ASN
2	J	808	ASN
1	B	99	ASN
1	C	120	ASN
2	I	216	THR
1	D	21	VAL
1	D	99	ASN
2	I	313	SER

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	125/126 (99%)	125 (100%)	0	100	100
1	B	125/126 (99%)	125 (100%)	0	100	100
1	C	124/126 (98%)	124 (100%)	0	100	100
1	D	125/126 (99%)	125 (100%)	0	100	100
1	E	125/126 (99%)	125 (100%)	0	100	100
1	F	125/126 (99%)	125 (100%)	0	100	100
1	G	124/126 (98%)	124 (100%)	0	100	100
1	H	126/126 (100%)	126 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	I	982/1081 (91%)	982 (100%)	0	100	100
2	J	973/1081 (90%)	972 (100%)	1 (0%)	88	88
All	All	2954/3170 (93%)	2953 (100%)	1 (0%)	100	100

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

Mol	Chain	Res	Type
2	J	1003	TYR

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

Mol	Chain	Res	Type
1	C	80	ASN
1	C	81	GLN
1	C	99	ASN
1	D	128	GLN
1	F	80	ASN
1	H	32	ASN
2	I	109	ASN
2	I	214	ASN
2	I	294	HIS
2	I	432	ASN
2	I	632	ASN
2	I	719	GLN
2	I	808	ASN
2	I	828	ASN
2	I	900	ASN
2	I	940	HIS
2	I	951	ASN
2	I	962	HIS
2	I	987	GLN
2	I	1122	HIS
2	I	1136	ASN
2	J	123	ASN
2	J	249	GLN
2	J	347	ASN
2	J	521	ASN
2	J	524	ASN
2	J	632	ASN
2	J	657	ASN

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Mol	Chain	Res	Type
2	J	696	ASN
2	J	895	ASN
2	J	1000	ASN
2	J	1049	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	138/140 (98%)	0.83	5 (3%)	46	29	13, 22, 39, 58	0
1	B	138/140 (98%)	0.62	3 (2%)	62	39	9, 23, 47, 68	0
1	C	138/140 (98%)	0.78	6 (4%)	40	25	9, 26, 47, 69	0
1	D	138/140 (98%)	0.69	5 (3%)	46	29	10, 25, 43, 78	0
1	E	138/140 (98%)	0.86	11 (7%)	18	14	8, 20, 33, 43	0
1	F	138/140 (98%)	0.67	2 (1%)	73	48	10, 22, 38, 52	0
1	G	138/140 (98%)	0.73	8 (5%)	29	20	8, 19, 40, 63	0
1	H	140/140 (100%)	0.64	3 (2%)	63	40	8, 22, 38, 85	0
2	I	1083/1159 (93%)	1.54	297 (27%)	1	2	9, 45, 117, 194	0
2	J	1073/1159 (92%)	1.08	151 (14%)	6	8	7, 30, 95, 158	0
All	All	3262/3438 (94%)	1.11	491 (15%)	5	7	7, 29, 97, 194	0

All (491) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	J	239	ASN	14.2
2	I	943	ASN	11.3
2	I	1033	ALA	8.5
2	I	949	GLU	8.4
2	I	946	GLU	8.0
2	I	235	ASN	7.6
2	J	238	GLU	7.3
2	J	996	GLU	7.2
2	I	590	ASP	7.0
2	J	994	ASN	6.9
2	I	960	ILE	6.9
2	I	950	LEU	6.9
2	I	1016	TYR	6.8

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Mol	Chain	Res	Type	RSRZ
2	I	855	LYS	6.6
2	I	1013	ILE	6.5
2	I	1032	SER	6.4
2	J	235	ASN	6.3
2	J	999	LYS	6.1
2	I	227	TYR	6.0
2	I	397	GLU	6.0
2	I	856	HIS	5.9
2	I	853	ILE	5.9
2	J	202	GLU	5.7
2	I	1050	TYR	5.7
1	G	97	VAL	5.6
2	I	1014	LYS	5.6
2	I	854	ILE	5.6
2	J	314	ASN	5.4
2	I	951	ASN	5.4
2	J	813	ASP	5.3
2	I	656	ALA	5.3
2	J	1039	LYS	5.3
2	I	1047	ILE	5.3
2	J	851	GLU	5.2
2	I	942	LYS	5.1
2	I	1008	ILE	5.1
2	J	1040	GLN	5.1
2	I	1009	VAL	5.0
2	I	887	LEU	4.9
2	I	231	ILE	4.9
2	J	236	ASP	4.9
2	I	858	ALA	4.9
2	J	353	TYR	4.9
2	I	309	TYR	4.9
2	J	315	ILE	4.9
2	I	859	PHE	4.8
2	J	951	ASN	4.8
2	I	202	GLU	4.7
2	I	411	VAL	4.7
2	I	815	GLU	4.7
2	I	1017	LYS	4.6
2	J	317	ASN	4.6
2	I	553	VAL	4.5
2	I	1025	VAL	4.5
2	I	847	TYR	4.5

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Mol	Chain	Res	Type	RSRZ
2	I	872	GLU	4.5
2	I	1046	TYR	4.5
2	I	1059	HIS	4.5
2	J	1034	ASN	4.5
2	J	119	ASN	4.4
2	I	873	LYS	4.4
2	I	875	ALA	4.4
2	J	307	TYR	4.4
2	I	1052	ALA	4.3
2	J	1037	VAL	4.3
2	I	230	ILE	4.3
2	I	1049	ASN	4.3
2	I	398	ASN	4.3
2	J	316	SER	4.3
2	J	1036	LYS	4.2
2	I	842	ASP	4.2
2	J	227	TYR	4.2
2	I	1001	VAL	4.2
2	I	866	GLY	4.1
1	C	2	ASP	4.1
2	I	663	MET	4.0
1	E	5	TYR	4.0
2	I	1020	HIS	4.0
2	J	237	LYS	3.9
2	I	239	ASN	3.9
2	I	435	ASN	3.9
2	I	845	LYS	3.9
2	I	1147	MET	3.9
2	I	938	TYR	3.9
2	I	582	ASP	3.9
2	I	1030	TYR	3.9
2	I	234	LYS	3.9
2	I	818	ALA	3.9
2	I	1021	GLN	3.9
2	I	1007	GLN	3.8
2	I	882	ILE	3.8
1	D	14	GLY	3.8
2	J	1041	GLU	3.8
2	J	231	ILE	3.8
2	I	433	LYS	3.8
2	J	815	GLU	3.8
2	I	400	ASN	3.7

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Mol	Chain	Res	Type	RSRZ
2	I	947	PHE	3.7
1	A	50	GLU	3.7
2	I	1024	GLU	3.7
2	J	1032	SER	3.7
2	I	829	GLY	3.7
2	J	811	THR	3.7
2	I	653	GLU	3.7
2	I	1034	ASN	3.6
2	J	77	ASP	3.6
2	I	879	GLY	3.6
2	I	817	GLU	3.6
2	I	314	ASN	3.6
2	I	410	THR	3.6
2	I	413	ASN	3.6
2	I	1037	VAL	3.6
2	I	883	SER	3.6
2	I	995	PHE	3.6
2	I	1018	GLU	3.6
2	I	948	ASN	3.5
2	I	404	GLY	3.5
2	J	787	ALA	3.5
2	I	1043	LYS	3.5
2	I	209	VAL	3.5
2	I	437	VAL	3.5
2	J	644	GLU	3.5
2	I	399	GLU	3.4
2	I	425	VAL	3.4
2	I	1027	ILE	3.4
2	J	1016	TYR	3.4
2	J	1121	VAL	3.4
2	J	995	PHE	3.4
2	I	551	PRO	3.4
2	J	212	ILE	3.4
2	I	1019	LEU	3.4
2	I	393	ILE	3.4
2	I	554	PRO	3.4
2	J	1095	GLU	3.4
1	E	101	LEU	3.3
2	I	200	TYR	3.3
2	I	664	ILE	3.3
2	I	996	GLU	3.3
1	D	13	ASP	3.3

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Mol	Chain	Res	Type	RSRZ
2	I	659	GLN	3.3
2	J	564	ASP	3.3
2	I	1056	TYR	3.3
2	J	79	THR	3.3
2	I	1076	SER	3.3
2	I	838	LEU	3.2
2	I	678	ILE	3.2
2	I	884	ILE	3.2
2	I	1006	GLY	3.2
2	I	623	ILE	3.2
2	J	1096	TYR	3.2
2	I	416	GLY	3.2
2	I	1022	ASN	3.2
2	J	1035	ILE	3.2
2	J	309	TYR	3.2
2	I	436	GLU	3.2
2	I	992	ILE	3.2
2	I	1005	GLY	3.2
1	G	98	THR	3.2
2	I	52	THR	3.2
2	I	945	VAL	3.1
2	I	1048	ALA	3.1
2	I	857	ARG	3.1
2	I	198	LYS	3.1
2	J	1028	ASN	3.1
2	I	1066	GLU	3.1
2	I	1125	ASN	3.1
2	I	1053	ALA	3.1
2	J	345	VAL	3.1
2	J	1033	ALA	3.1
2	J	960	ILE	3.1
2	I	467	ALA	3.1
2	I	848	PHE	3.1
2	J	917	ASP	3.1
2	I	846	ILE	3.0
2	J	627	LYS	3.0
2	I	1065	LEU	3.0
2	J	103	ASP	3.0
1	E	8	VAL	3.0
2	J	350	LYS	3.0
2	J	852	ASN	3.0
1	G	88	VAL	3.0

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Mol	Chain	Res	Type	RSRZ
2	I	984	PRO	3.0
2	J	1027	ILE	3.0
2	I	852	ASN	3.0
2	J	850	GLY	3.0
2	I	240	PHE	3.0
2	I	993	PHE	3.0
2	I	849	ASP	3.0
2	I	78	ASN	3.0
2	I	874	ILE	2.9
2	I	196	PHE	2.9
2	I	394	LEU	2.9
2	J	998	LYS	2.9
2	I	988	TYR	2.9
2	J	1126	LEU	2.9
2	I	888	LYS	2.9
2	J	931	ALA	2.9
2	I	681	ILE	2.9
2	J	962	HIS	2.9
2	I	359	GLU	2.9
2	I	822	GLY	2.9
2	I	403	THR	2.9
2	I	878	ALA	2.9
2	J	858	ALA	2.9
2	I	1012	TYR	2.9
2	I	414	ASN	2.9
2	I	811	THR	2.8
2	I	843	THR	2.8
2	J	843	THR	2.8
2	J	982	GLU	2.8
2	I	953	LEU	2.8
2	I	862	ILE	2.8
2	I	549	ASN	2.8
2	I	349	GLY	2.8
2	I	279	ASP	2.8
2	I	291	ALA	2.8
2	I	652	LYS	2.8
1	F	85	ILE	2.8
2	J	786	SER	2.8
2	I	238	GLU	2.8
2	I	850	GLY	2.8
2	J	986	ASN	2.8
1	G	30	GLU	2.8

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Mol	Chain	Res	Type	RSRZ
2	J	349	GLY	2.8
2	J	997	ASN	2.8
2	I	1002	LYS	2.8
2	J	1011	LYS	2.8
2	J	320	ILE	2.8
1	E	3	VAL	2.8
2	I	265	SER	2.8
2	I	647	GLN	2.8
2	J	306	ASN	2.8
2	J	770	ASN	2.8
1	E	128	GLN	2.7
2	I	225	GLU	2.7
2	I	1114	THR	2.7
2	I	197	ASP	2.7
1	F	129	LYS	2.7
2	I	682	GLN	2.7
2	J	879	GLY	2.7
2	I	390	LEU	2.7
2	J	213	GLU	2.7
1	A	88	VAL	2.7
2	J	1029	LYS	2.7
2	J	1127	LYS	2.7
2	I	860	TYR	2.7
2	I	672	GLU	2.7
2	J	939	THR	2.7
2	I	830	ASN	2.7
2	J	844	ASN	2.7
2	I	1124	LYS	2.7
2	I	1015	PHE	2.7
2	I	898	GLU	2.7
2	I	580	ASN	2.7
2	I	899	LYS	2.7
2	J	220	LYS	2.7
2	J	1019	LEU	2.7
2	I	351	TYR	2.7
2	I	1026	LYS	2.7
2	J	835	ASN	2.7
2	I	357	ASP	2.6
2	I	1097	GLY	2.6
2	J	148	PHE	2.6
1	H	62	VAL	2.6
2	I	221	TYR	2.6

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Mol	Chain	Res	Type	RSRZ
2	I	1038	LEU	2.6
2	I	1071	LEU	2.6
2	I	994	ASN	2.6
2	J	1001	VAL	2.6
2	I	1051	ILE	2.6
2	J	630	LYS	2.6
2	J	241	ALA	2.6
2	I	880	TYR	2.6
2	I	564	ASP	2.6
2	J	806	ASP	2.6
2	I	476	VAL	2.6
2	I	821	ILE	2.6
1	E	6	PRO	2.6
2	I	677	TYR	2.6
2	I	827	PHE	2.6
2	J	814	PHE	2.6
1	D	79	GLU	2.6
2	I	839	LYS	2.6
2	I	1130	LYS	2.6
2	I	199	LEU	2.6
2	J	240	PHE	2.6
2	I	465	ASP	2.6
2	I	450	ASN	2.6
2	I	934	ASN	2.6
2	J	913	ARG	2.6
2	I	40	MET	2.6
1	H	57	ALA	2.6
1	G	102	LYS	2.5
2	I	587	GLU	2.5
2	I	1128	LYS	2.5
2	I	446	SER	2.5
2	J	411	VAL	2.5
2	I	237	LYS	2.5
2	I	864	LYS	2.5
2	J	853	ILE	2.5
1	A	93	GLU	2.5
2	I	480	LEU	2.5
2	I	1010	GLU	2.5
2	J	437	VAL	2.5
2	J	455	ASN	2.5
2	I	236	ASP	2.5
2	I	315	ILE	2.5

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Mol	Chain	Res	Type	RSRZ
2	I	650	ILE	2.5
2	I	944	LYS	2.5
2	J	150	LYS	2.5
1	E	110	VAL	2.5
2	I	451	MET	2.5
2	I	212	ILE	2.5
2	I	401	ASP	2.5
1	C	97	VAL	2.5
2	I	412	LYS	2.5
2	I	1028	ASN	2.5
2	J	1000	ASN	2.5
2	J	1008	ILE	2.5
2	J	404	GLY	2.5
2	J	251	VAL	2.5
1	E	116	ALA	2.4
2	I	547	ASN	2.4
1	G	109	PRO	2.4
2	J	1006	GLY	2.4
2	I	223	ILE	2.4
2	I	1045	LEU	2.4
2	I	955	GLY	2.4
2	J	403	THR	2.4
2	I	823	LYS	2.4
2	J	198	LYS	2.4
1	E	19	CYS	2.4
1	B	85	ILE	2.4
2	I	1146	ILE	2.4
2	I	424	GLU	2.4
2	I	1126	LEU	2.4
2	J	96	GLU	2.4
2	J	732	ASN	2.4
2	I	487	ILE	2.4
2	I	211	GLU	2.4
2	I	417	GLU	2.4
2	I	371	GLN	2.4
2	J	1021	GLN	2.4
2	I	612	ASN	2.4
2	J	413	ASN	2.4
2	I	952	LEU	2.4
2	J	210	LEU	2.4
2	J	907	LEU	2.4
2	J	274	TYR	2.4

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Mol	Chain	Res	Type	RSRZ
2	I	1061	GLU	2.4
2	J	322	ARG	2.4
2	I	432	ASN	2.4
2	J	78	ASN	2.4
2	J	366	ILE	2.4
2	I	352	ASN	2.3
2	I	964	LEU	2.3
2	J	882	ILE	2.3
2	J	1131	LEU	2.3
2	I	775	THR	2.3
2	J	915	ARG	2.3
2	I	674	LYS	2.3
2	I	679	ASP	2.3
2	J	1113	GLN	2.3
2	I	550	ILE	2.3
2	I	1042	LYS	2.3
2	J	1012	TYR	2.3
2	I	430	ASN	2.3
2	I	322	ARG	2.3
2	I	1003	TYR	2.3
2	I	320	ILE	2.3
2	I	987	GLN	2.3
2	J	318	ASP	2.3
2	J	791	GLU	2.3
2	I	657	ASN	2.3
2	I	844	ASN	2.3
2	J	347	ASN	2.3
2	I	224	ARG	2.3
2	I	370	ARG	2.3
2	I	427	LYS	2.3
2	I	910	LYS	2.3
2	I	913	ARG	2.3
2	I	1151	LYS	2.3
2	J	1143	LEU	2.3
1	E	4	PHE	2.3
2	I	897	ILE	2.3
2	J	1084	ALA	2.3
1	D	46	SER	2.3
2	I	1023	ASP	2.3
2	J	300	MET	2.3
2	J	808	ASN	2.3
2	I	956	LEU	2.3

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Mol	Chain	Res	Type	RSRZ
2	I	1150	TYR	2.3
2	J	351	TYR	2.3
2	I	1127	LYS	2.3
2	J	863	LYS	2.3
2	J	920	PHE	2.2
2	I	1004	LYS	2.2
2	J	234	LYS	2.2
2	J	812	GLU	2.2
1	G	53	GLY	2.2
2	I	262	PRO	2.2
2	J	914	PRO	2.2
2	I	318	ASP	2.2
2	I	670	ASP	2.2
2	I	205	ILE	2.2
2	J	912	ALA	2.2
2	I	83	LYS	2.2
2	I	326	TYR	2.2
2	I	1029	LYS	2.2
2	I	648	GLU	2.2
2	J	407	ARG	2.2
2	I	914	PRO	2.2
1	C	120	ASN	2.2
2	J	230	ILE	2.2
2	I	1103	LYS	2.2
2	I	796	GLN	2.2
2	J	810	VAL	2.2
1	C	18	GLY	2.2
2	I	876	ASP	2.2
2	I	367	ALA	2.2
1	A	16	TYR	2.2
2	I	890	TYR	2.2
2	I	736	ILE	2.2
2	I	932	ILE	2.2
2	J	935	ILE	2.2
2	J	1013	ILE	2.2
2	J	310	LYS	2.2
2	I	828	ASN	2.2
2	J	142	ASN	2.2
2	J	668	ASN	2.2
2	J	633	LEU	2.2
1	B	84	TYR	2.2
2	I	671	GLU	2.2

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Mol	Chain	Res	Type	RSRZ
2	I	1058	PRO	2.2
2	J	211	GLU	2.2
2	J	836	LYS	2.2
2	I	835	ASN	2.2
1	C	52	LEU	2.2
2	I	489	ALA	2.1
2	I	91	ASP	2.1
1	C	110	VAL	2.1
1	H	9	VAL	2.1
2	J	174	ILE	2.1
2	J	200	TYR	2.1
2	J	412	LYS	2.1
2	I	97	THR	2.1
2	I	591	ALA	2.1
2	I	103	ASP	2.1
2	I	1122	HIS	2.1
2	J	333	ILE	2.1
2	J	1017	LYS	2.1
2	I	133	ASP	2.1
2	J	908	HIS	2.1
2	J	1030	TYR	2.1
1	A	86	LEU	2.1
2	I	362	THR	2.1
2	I	555	SER	2.1
2	I	660	SER	2.1
2	I	1098	PHE	2.1
2	I	426	ASP	2.1
1	G	29	GLY	2.1
2	J	1005	GLY	2.1
2	I	229	GLU	2.1
2	I	851	GLU	2.1
2	I	1035	ILE	2.1
2	I	217	LYS	2.1
2	I	1099	VAL	2.1
2	I	961	LEU	2.1
2	J	1045	LEU	2.1
2	I	579	THR	2.1
2	I	1031	SER	2.1
2	J	1038	LEU	2.1
2	I	406	MET	2.1
2	I	420	TYR	2.0
2	I	1123	LEU	2.0

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Mol	Chain	Res	Type	RSRZ
1	E	32	ASN	2.0
2	I	392	ASN	2.0
2	J	626	ASN	2.0
1	D	84	TYR	2.0
2	I	333	ILE	2.0
2	I	645	ASP	2.0
2	I	814	PHE	2.0
2	I	214	ASN	2.0
2	I	770	ASN	2.0
2	I	928	TYR	2.0
2	J	932	ILE	2.0
1	B	30	GLU	2.0
2	I	816	LEU	2.0
2	I	819	ASP	2.0
2	I	957	LEU	2.0
2	J	1009	VAL	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.