Full wwPDB EM Validation Report

Jul 15, 2025 – 09:46 PM JST

PDB ID	:	9JSZ / pdb_00009jsz
EMDB ID	:	EMD-61787
Title	:	active NbaSPARDA complexes
Authors	:	Zhuang, L.
Deposited on	:	2024-10-01
Resolution	:	3.18 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

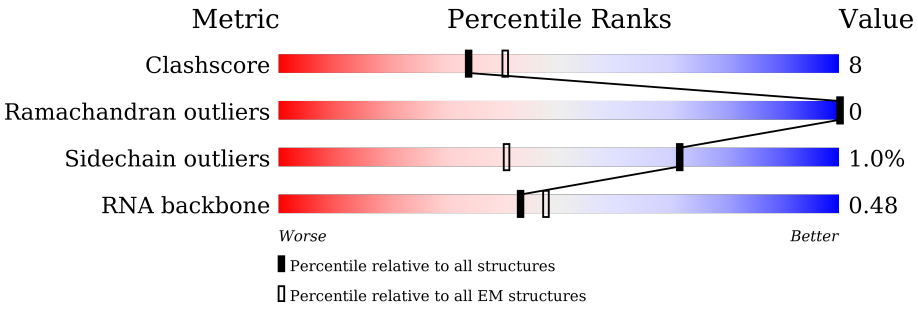
EMDB validation analysis	:	FAILED
MolProbity	:	4-5-2 with Phenix2.0rc1
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	FAILED
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)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

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.18 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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

Mol	Chain	Length	Quality of chain
1	A	485	78% 19% .
1	E	485	74% 21% . .
1	I	485	83% 13% .
1	M	485	80% 16% .
2	B	442	74% 18% 8%
2	F	442	68% 24% 8%
2	J	442	69% 19% 12%
2	N	442	69% 18% . 12%

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Mol	Chain	Length	Quality of chain
3	D	21	43% 43% 14%
3	H	21	62% 24% 14%
3	L	21	62% 24% 14%
3	P	21	76% 10% 14%
4	C	20	30% 50% 15% 5%
4	G	20	50% 35% 10% 5%
4	K	20	55% 30% 5% 10%
4	O	20	45% 40% 10% 5%

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 30772 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Ago.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	469	Total	C	N	O	S	0	0
			3723	2361	656	691	15		
1	M	466	Total	C	N	O	S	0	0
			3704	2349	652	688	15		
1	E	468	Total	C	N	O	S	0	0
			3715	2356	655	690	14		
1	I	466	Total	C	N	O	S	0	0
			3704	2349	652	688	15		

- Molecule 2 is a protein called DREN-APAZ.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	407	Total	C	N	O	S	0	0
			3275	2087	570	609	9		
2	N	389	Total	C	N	O	S	0	0
			3146	2000	551	586	9		
2	F	407	Total	C	N	O	S	0	0
			3275	2087	570	609	9		
2	J	389	Total	C	N	O	S	0	0
			3146	2000	551	586	9		

- Molecule 3 is a DNA chain called DNA (5'-D(*TP*AP*TP*CP*GP*TP*CP*AP*GP*CP*TP*GP*TP*GP*CP*AP*GP*TP*AP*TP*T)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
3	P	18	Total	C	N	O	P	0	0
			370	176	67	109	18		
3	L	18	Total	C	N	O	P	0	0
			370	176	67	109	18		
3	H	18	Total	C	N	O	P	0	0
			370	176	67	109	18		
3	D	18	Total	C	N	O	P	0	0
			370	176	67	109	18		

- Molecule 4 is a RNA chain called RNA (5'-R(P*AP*UP*AP*CP*UP*GP*CP*AP*CP*AP *GP*CP*UP*GP*AP*CP*GP*AP*UP*A)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
4	O	19	Total 405	C 181	N 73	O 132	P 19	0	0
4	K	18	Total 385	C 172	N 71	O 124	P 18	0	0
4	G	19	Total 405	C 181	N 73	O 132	P 19	0	0
4	C	19	Total 405	C 181	N 73	O 132	P 19	0	0

- Molecule 5 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

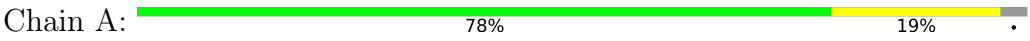
Mol	Chain	Residues	Atoms		AltConf
5	M	1	Total 1	Mg 1	0
5	G	1	Total 1	Mg 1	0
5	I	1	Total 1	Mg 1	0
5	C	1	Total 1	Mg 1	0

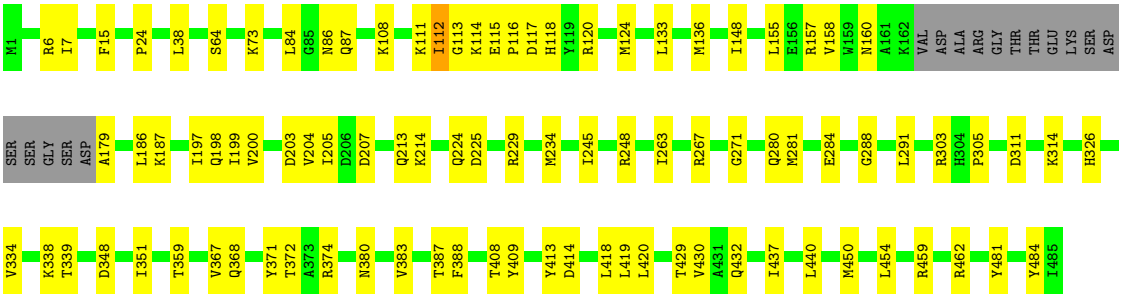
3 Residue-property plots (i)

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. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: Ago

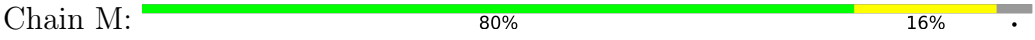
Chain A:

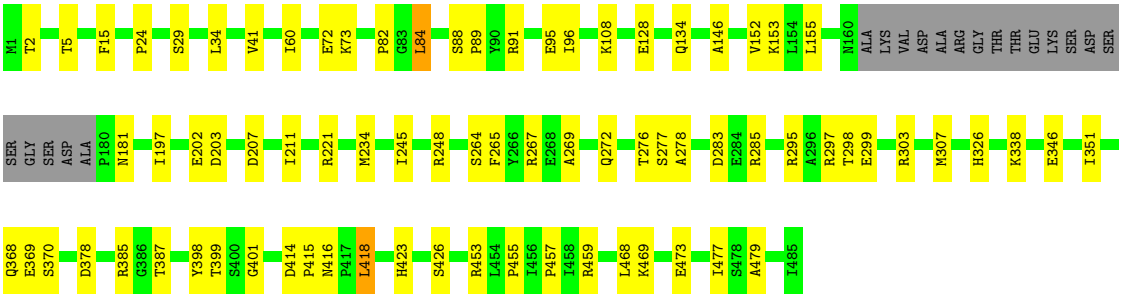




- Molecule 1: Ago

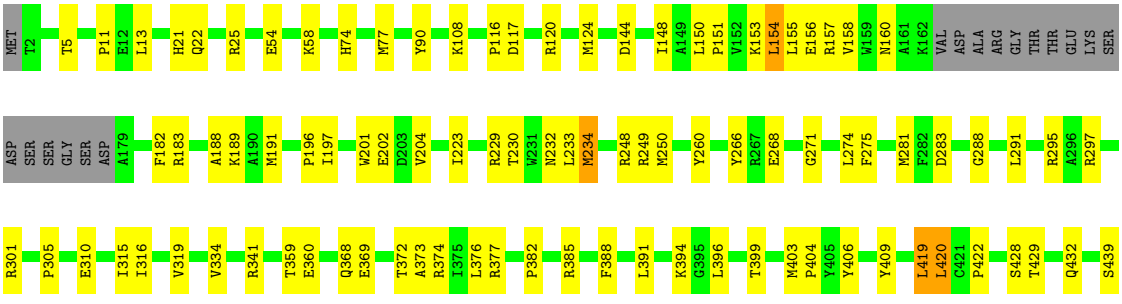
Chain M:





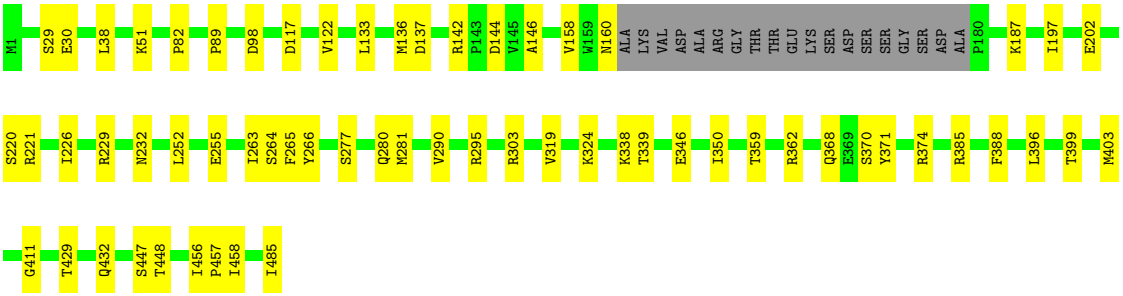
- Molecule 1: Ago

Chain E:



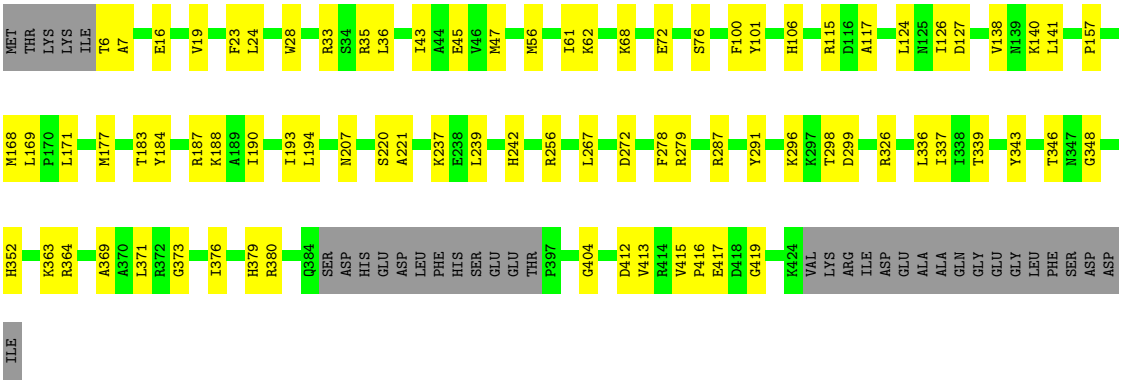
• Molecule 1: Ago

Chain I:



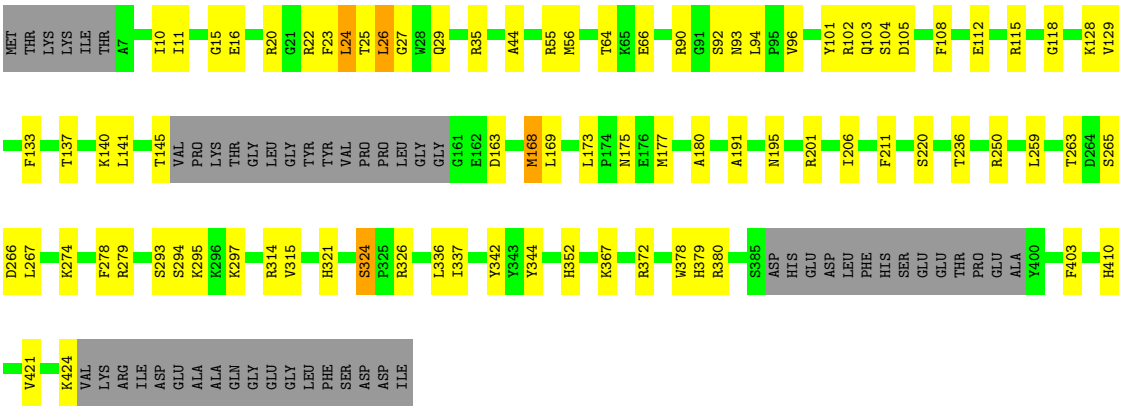
• Molecule 2: DREN-APAZ

Chain B:



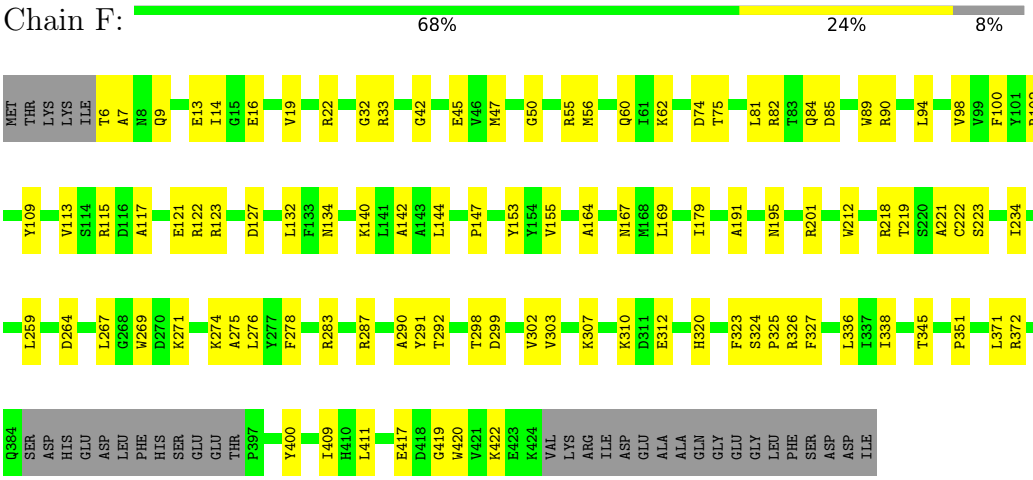
• Molecule 2: DREN-APAZ

Chain N:



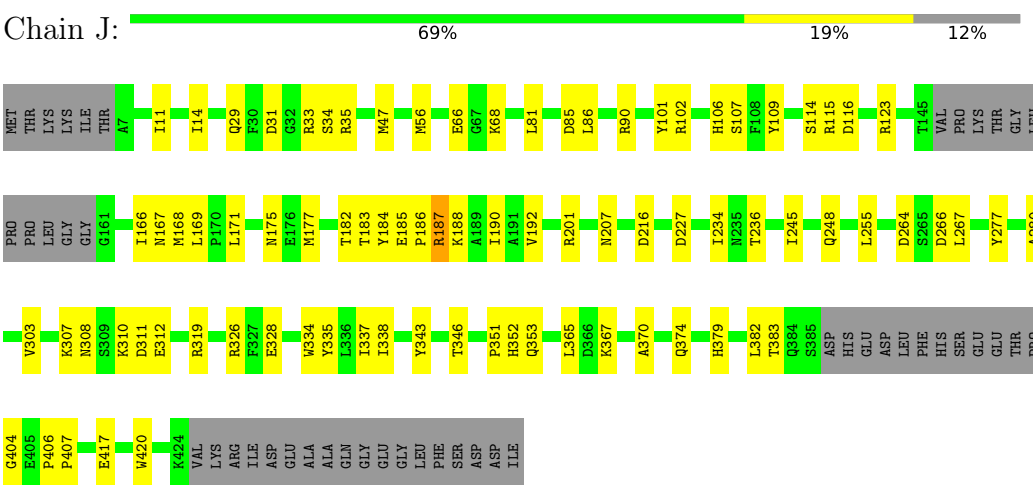
• Molecule 2: DREN-APAZ

Chain F:



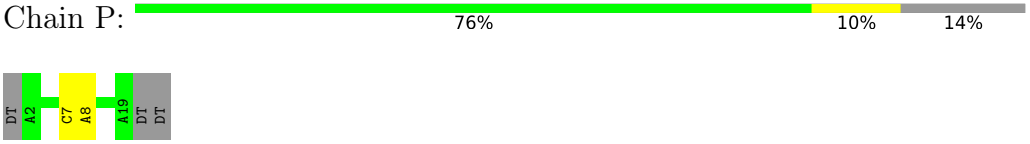
• Molecule 2: DREN-APAZ

Chain J:



• Molecule 3: DNA (5'-D(*TP*AP*TP*CP*GP*TP*CP*AP*GP*CP*TP*GP*TP*GP*CP*AP*GP*TP*AP*TP*T)-3')

Chain P:

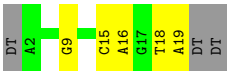


• Molecule 3: DNA (5'-D(*TP*AP*TP*CP*GP*TP*CP*AP*GP*CP*TP*GP*TP*GP*CP*AP*GP*TP*AP*TP*T)-3')

Chain L:

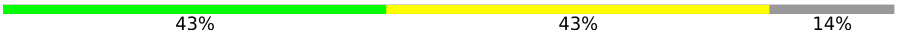
• Molecule 3: DNA (5'-D(*TP*AP*TP*CP*GP*TP*CP*AP*GP*CP*TP*GP*TP*GP*CP*AP*GP*TP*AP*TP*T)-3')

Chain H:



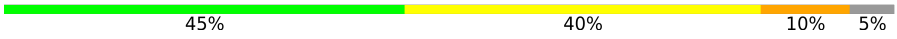
• Molecule 3: DNA (5'-D(*TP*AP*TP*CP*GP*TP*CP*AP*GP*CP*TP*GP*TP*GP*CP*AP*GP*TP*AP*TP*T)-3')

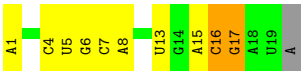
Chain D:



• Molecule 4: RNA (5'-R(P*AP*UP*AP*CP*UP*GP*CP*AP*CP*AP*GP*CP*UP*GP*AP*CP*GP*AP*UP*A)-3')

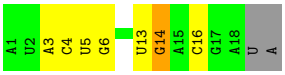
Chain O:





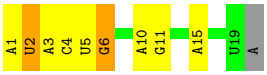
• Molecule 4: RNA (5'-R(P*AP*UP*AP*CP*UP*GP*CP*AP*CP*AP*GP*CP*UP*GP*AP*CP*GP*AP*UP*A)-3')

Chain K:



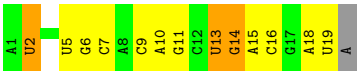
• Molecule 4: RNA (5'-R(P*AP*UP*AP*CP*UP*GP*CP*AP*CP*AP*GP*CP*UP*GP*AP*CP*GP*AP*UP*A)-3')

Chain G:



• Molecule 4: RNA (5'-R(P*AP*UP*AP*CP*UP*GP*CP*AP*CP*AP*GP*CP*UP*GP*AP*CP*GP*AP*UP*A)-3')

Chain C:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	39659	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	54	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor

5 Model quality

5.1 Standard geometry

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

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	0.19	0/3808	0.45	0/5141
1	E	0.20	0/3800	0.49	0/5131
1	I	0.16	0/3789	0.37	0/5115
1	M	0.18	0/3789	0.40	0/5115
2	B	0.17	0/3357	0.44	0/4551
2	F	0.18	0/3357	0.49	0/4551
2	J	0.16	0/3221	0.44	0/4361
2	N	0.17	0/3221	0.45	0/4361
3	D	0.25	0/414	0.51	0/637
3	H	0.22	0/414	0.44	0/637
3	L	0.22	0/414	0.45	0/637
3	P	0.23	0/414	0.45	0/637
4	C	0.18	0/452	0.37	0/700
4	G	0.21	0/452	0.43	0/700
4	K	0.15	0/430	0.26	0/666
4	O	0.15	0/452	0.32	0/700
All	All	0.18	0/31784	0.44	0/43640

There are no bond length outliers.

There are no bond angle outliers.

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	3723	0	3707	59	0
1	E	3715	0	3695	80	0
1	I	3704	0	3685	39	0
1	M	3704	0	3685	51	0
2	B	3275	0	3204	56	0
2	F	3275	0	3204	70	0
2	J	3146	0	3071	61	0
2	N	3146	0	3071	62	0
3	D	370	0	204	8	0
3	H	370	0	204	4	0
3	L	370	0	204	5	0
3	P	370	0	204	1	0
4	C	405	0	206	9	0
4	G	405	0	206	9	0
4	K	385	0	196	5	0
4	O	405	0	206	8	0
5	C	1	0	0	0	0
5	G	1	0	0	0	0
5	I	1	0	0	0	0
5	M	1	0	0	0	0
All	All	30772	0	28952	474	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 8.

All (474) 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:111:LYS:HE3	1:A:112:ILE:HG12	1.67	0.77
1:E:191:MET:HG2	1:E:477:ILE:HA	1.67	0.76
2:B:267:LEU:HB2	2:B:278:PHE:HA	1.74	0.70
1:A:117:ASP:HB3	1:A:120:ARG:HG2	1.74	0.69
1:E:396:LEU:HG	1:E:419:LEU:HB3	1.74	0.69
1:A:368:GLN:HB2	1:A:419:LEU:HB3	1.74	0.69
2:J:102:ARG:O	2:J:106:HIS:HA	1.92	0.69
1:E:441:THR:O	1:E:452:GLN:NE2	2.27	0.68
1:M:203:ASP:HB2	1:M:221:ARG:HH21	1.60	0.66
1:E:394:LYS:HB3	1:E:419:LEU:HD13	1.79	0.64
2:B:239:LEU:O	2:B:242:HIS:NE2	2.31	0.64
2:F:302:VAL:HG12	2:F:303:VAL:HG23	1.80	0.63
2:F:201:ARG:H	2:F:221:ALA:HB2	1.63	0.63
2:N:326:ARG:HB2	2:N:337:ILE:HG12	1.81	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:62:LYS:O	2:B:100:PHE:HA	1.99	0.62
2:J:307:LYS:HD3	2:J:312:GLU:HA	1.82	0.62
1:A:311:ASP:HA	1:A:314:LYS:HE2	1.83	0.61
1:A:113:GLY:HA3	1:A:157:ARG:CZ	2.31	0.61
2:F:22:ARG:NH1	2:F:134:ASN:OD1	2.34	0.60
1:A:204:VAL:HG13	1:A:229:ARG:HD2	1.83	0.60
2:N:22:ARG:HE	2:N:133:PHE:HB3	1.67	0.60
1:E:150:LEU:HD12	1:E:155:LEU:HD22	1.83	0.60
2:F:140:LYS:HG3	2:F:419:GLY:HA2	1.84	0.60
1:I:146:ALA:HB3	1:I:197:ILE:HG22	1.84	0.60
1:E:248:ARG:NH1	1:E:283:ASP:OD1	2.35	0.60
1:A:372:THR:HG21	2:B:326:ARG:HG3	1.83	0.59
2:F:299:ASP:OD1	2:F:380:ARG:NH2	2.35	0.59
1:E:250:MET:SD	1:E:250:MET:N	2.75	0.59
1:A:372:THR:HG1	2:B:339:THR:HG1	1.50	0.59
1:M:297:ARG:HH12	1:M:473:GLU:HA	1.68	0.58
1:A:213:GLN:HE22	3:D:15:DC:H2'	1.69	0.58
4:K:16:C:O2'	2:J:207:ASN:ND2	2.31	0.58
1:E:376:LEU:HD23	2:F:167:ASN:HD22	1.68	0.58
2:N:29:GLN:O	2:N:44:ALA:HA	2.03	0.58
1:E:281:MET:HB3	1:E:291:LEU:HG	1.86	0.58
1:M:276:THR:HG21	1:M:307:MET:HB3	1.85	0.58
1:E:196:PRO:HB3	1:E:483:LYS:HB3	1.86	0.58
2:J:29:GLN:HB2	2:J:47:MET:HE1	1.86	0.57
2:J:187:ARG:H	2:J:187:ARG:HD2	1.69	0.57
2:N:35:ARG:NH1	2:J:34:SER:OG	2.35	0.57
2:F:179:ILE:HG12	2:F:234:ILE:HD11	1.87	0.57
2:F:274:LYS:HB3	2:F:324:SER:HB2	1.85	0.57
2:F:291:TYR:H	2:F:299:ASP:HB2	1.68	0.57
1:E:420:LEU:O	1:E:422:PRO:HD3	2.04	0.57
2:N:108:PHE:HB2	2:N:133:PHE:HB2	1.86	0.57
1:A:408:THR:OG1	1:A:409:TYR:N	2.38	0.57
2:B:279:ARG:NH1	2:B:348:GLY:O	2.37	0.57
1:I:338:LYS:NZ	1:I:346:GLU:OE2	2.38	0.56
2:B:157:PRO:HG3	2:B:416:PRO:HG3	1.87	0.56
2:F:81:LEU:HB2	2:F:123:ARG:HB2	1.86	0.56
1:I:385:ARG:NH1	1:I:399:THR:O	2.37	0.56
2:N:293:SER:HB3	2:N:297:LYS:HD2	1.87	0.56
2:F:6:THR:OG1	2:F:7:ALA:N	2.36	0.56
2:J:266:ASP:HB2	2:J:287:ARG:HH12	1.70	0.56
2:F:287:ARG:HB3	2:F:303:VAL:HB	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:22:GLN:O	1:E:442:LYS:NZ	2.39	0.56
1:I:359:THR:O	1:I:362:ARG:NH2	2.39	0.56
2:J:166:ILE:HD12	2:J:168:MET:HE3	1.87	0.56
1:A:6:ARG:HB3	1:A:388:PHE:HB3	1.89	0.55
2:B:177:MET:HE2	2:B:239:LEU:HD21	1.86	0.55
1:M:297:ARG:O	1:M:298:THR:C	2.49	0.55
2:N:22:ARG:O	2:N:22:ARG:NH1	2.33	0.55
2:J:187:ARG:O	2:J:190:ILE:HG12	2.06	0.55
2:N:137:THR:HG21	2:N:140:LYS:HD3	1.88	0.55
1:M:88:SER:O	1:M:91:ARG:NH1	2.40	0.55
1:E:183:ARG:NH2	1:E:466:GLU:OE2	2.40	0.55
1:M:369:GLU:OE2	1:M:453:ARG:NH2	2.40	0.55
1:E:274:LEU:HD22	1:E:305:PRO:HB3	1.88	0.55
1:I:137:ASP:O	1:I:142:ARG:NH1	2.40	0.55
1:A:367:VAL:HG22	1:A:418:LEU:HD21	1.88	0.54
2:F:201:ARG:NH1	2:F:400:TYR:OH	2.40	0.54
2:J:177:MET:HB2	2:J:236:THR:HG22	1.89	0.54
2:B:35:ARG:HH11	2:F:13:GLU:HB3	1.73	0.54
2:B:296:LYS:NZ	2:B:298:THR:OG1	2.40	0.54
1:M:248:ARG:NH1	1:M:283:ASP:OD1	2.40	0.54
1:E:373:ALA:HB3	1:E:396:LEU:HD22	1.89	0.54
1:A:116:PRO:HG2	1:A:120:ARG:NH1	2.23	0.54
2:F:60:GLN:HE21	2:F:98:VAL:HG23	1.73	0.54
2:J:185:GLU:O	2:J:186:PRO:C	2.50	0.54
1:E:249:ARG:NH2	1:E:260:TYR:OH	2.41	0.54
2:N:326:ARG:H	2:N:337:ILE:HG12	1.73	0.53
2:J:201:ARG:NH1	2:J:264:ASP:OD2	2.41	0.53
1:M:378:ASP:HB2	2:N:372:ARG:HE	1.73	0.53
1:M:134:GLN:OE1	1:I:295:ARG:NH2	2.42	0.53
4:G:2:U:O2	1:E:232:ASN:ND2	2.42	0.53
2:J:187:ARG:HD3	2:J:188:LYS:NZ	2.22	0.53
2:B:169:LEU:HD12	2:B:336:LEU:HD23	1.91	0.53
1:I:368:GLN:NE2	1:I:370:SER:O	2.42	0.53
2:B:364:ARG:NH1	3:D:17:DG:OP1	2.42	0.53
2:N:66:GLU:HG2	2:N:103:GLN:HG3	1.91	0.53
2:N:191:ALA:O	2:N:195:ASN:ND2	2.40	0.53
2:N:314:ARG:NH1	2:N:315:VAL:O	2.42	0.52
2:F:218:ARG:HA	2:F:223:SER:HB2	1.92	0.52
2:J:66:GLU:OE2	2:J:68:LYS:NZ	2.42	0.52
1:E:266:TYR:CZ	1:E:275:PHE:HB2	2.44	0.52
2:B:140:LYS:HB2	2:B:419:GLY:HA2	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:105:ASP:O	2:F:106:HIS:ND1	2.42	0.52
1:E:295:ARG:HA	1:E:477:ILE:HG12	1.92	0.52
2:J:365:LEU:O	2:J:367:LYS:NZ	2.43	0.52
1:A:437:ILE:HA	1:A:440:LEU:HB2	1.91	0.52
2:B:190:ILE:HA	2:B:193:ILE:HG22	1.90	0.52
2:N:24:LEU:HA	2:N:27:GLY:O	2.10	0.52
1:A:15:PHE:HZ	1:A:24:PRO:HA	1.75	0.52
1:A:187:LYS:HG2	1:A:197:ILE:HD11	1.92	0.52
1:A:84:LEU:HD11	1:A:234:MET:HE3	1.92	0.52
1:A:267:ARG:NH1	1:A:271:GLY:O	2.42	0.51
2:B:187:ARG:NH1	4:C:18:A:N3	2.57	0.51
3:L:8:DA:H5"	2:J:326:ARG:HH22	1.75	0.51
2:B:220:SER:OG	2:B:221:ALA:N	2.43	0.51
2:F:142:ALA:HB1	2:F:155:VAL:HG21	1.92	0.51
1:A:284:GLU:OE2	1:A:326:HIS:ND1	2.41	0.51
2:N:56:MET:HG2	2:N:94:LEU:HD11	1.92	0.51
1:E:301:ARG:NH1	1:E:310:GLU:OE2	2.43	0.51
1:M:29:SER:HA	1:M:89:PRO:HB3	1.93	0.51
2:F:82:ARG:NH2	2:F:84:GLN:OE1	2.44	0.51
2:N:321:HIS:HB3	2:N:342:TYR:HD1	1.75	0.51
1:E:396:LEU:HG	1:E:419:LEU:CB	2.41	0.51
2:B:45:GLU:HB2	2:B:56:MET:HE1	1.92	0.51
1:I:117:ASP:OD1	1:I:117:ASP:N	2.41	0.51
1:M:264:SER:OG	1:M:265:PHE:N	2.43	0.51
1:M:338:LYS:NZ	1:M:346:GLU:OE1	2.42	0.51
2:N:259:LEU:O	2:N:263:THR:OG1	2.27	0.51
1:A:224:GLN:OE1	4:C:2:U:N3	2.39	0.50
2:F:256:ARG:HH22	2:F:275:ALA:HA	1.76	0.50
1:M:84:LEU:HA	1:M:88:SER:HB2	1.93	0.50
2:N:294:SER:HB2	2:N:295:LYS:HE2	1.92	0.50
2:F:303:VAL:HG22	2:F:320:HIS:HA	1.93	0.50
4:G:1:A:H61	1:E:182:PHE:HB3	1.77	0.50
1:A:388:PHE:HZ	1:A:430:VAL:HG13	1.76	0.50
1:E:155:LEU:HA	1:E:158:VAL:HG12	1.94	0.50
1:E:443:VAL:HB	1:E:456:ILE:HD13	1.93	0.50
2:N:20:ARG:HG2	2:N:24:LEU:HD22	1.94	0.50
2:N:259:LEU:HD21	2:N:403:PHE:HZ	1.76	0.50
1:E:156:GLU:HG3	1:E:157:ARG:HG2	1.94	0.50
2:J:81:LEU:HD23	2:J:86:LEU:HD13	1.94	0.50
1:A:73:LYS:HD2	3:D:19:DA:H2"	1.94	0.50
1:M:272:GLN:HB2	1:M:303:ARG:CZ	2.42	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:92:SER:OG	2:N:93:ASN:N	2.45	0.50
2:N:128:LYS:HE3	2:N:129:VAL:HG13	1.93	0.50
1:E:90:TYR:OH	1:E:234:MET:HB3	2.11	0.50
1:A:303:ARG:NE	4:C:13:U:OP1	2.42	0.49
2:N:55:ARG:HH22	2:N:145:THR:HG1	1.54	0.49
2:N:336:LEU:HD13	2:N:403:PHE:HE2	1.77	0.49
2:N:266:ASP:OD1	2:N:266:ASP:N	2.43	0.49
3:H:19:DA:N3	1:E:74:HIS:ND1	2.52	0.49
1:E:268:GLU:HB3	1:E:271:GLY:H	1.76	0.49
2:B:36:LEU:O	2:N:29:GLN:NE2	2.45	0.49
1:M:82:PRO:HG2	1:M:89:PRO:HD3	1.94	0.49
2:N:378:TRP:HD1	2:N:379:HIS:H	1.61	0.49
2:N:16:GLU:OE2	2:N:20:ARG:NH2	2.46	0.49
1:E:148:ILE:HG13	1:E:197:ILE:HD12	1.95	0.49
1:E:151:PRO:HB2	1:E:154:LEU:HB2	1.95	0.49
1:I:280:GLN:HB2	1:I:319:VAL:HG22	1.95	0.49
2:N:112:GLU:HB2	2:N:141:LEU:HD13	1.94	0.49
2:N:326:ARG:HB2	2:N:337:ILE:CD1	2.43	0.49
2:J:216:ASP:N	2:J:216:ASP:OD1	2.41	0.49
1:E:403:MET:HE3	1:E:406:TYR:H	1.78	0.49
2:F:90:ARG:HH11	2:F:117:ALA:H	1.59	0.49
2:B:68:LYS:HG3	2:B:72:GLU:HB3	1.95	0.49
2:B:138:VAL:O	2:B:141:LEU:HB3	2.12	0.49
1:M:385:ARG:NH1	1:M:399:THR:O	2.46	0.49
4:G:4:C:H2'	4:G:5:U:C6	2.47	0.49
1:E:25:ARG:NE	1:E:448:THR:OG1	2.39	0.49
2:F:264:ASP:OD1	2:F:264:ASP:N	2.40	0.49
2:J:184:TYR:OH	2:J:192:VAL:HG21	2.13	0.48
1:A:429:THR:HG23	1:A:432:GLN:H	1.78	0.48
2:F:417:GLU:HA	2:F:420:TRP:HB2	1.95	0.48
1:I:264:SER:OG	1:I:265:PHE:N	2.46	0.48
2:J:267:LEU:HA	2:J:277:TYR:O	2.12	0.48
1:A:454:LEU:H	1:A:459:ARG:HH21	1.61	0.48
1:A:148:ILE:HD11	1:A:186:LEU:HD21	1.95	0.48
1:E:444:ASN:HB3	1:E:456:ILE:HG12	1.95	0.48
2:J:328:GLU:HG2	2:J:337:ILE:HD11	1.96	0.48
1:M:153:LYS:HA	1:M:153:LYS:HD3	1.65	0.48
2:F:338:ILE:HD11	2:F:375:VAL:HG22	1.95	0.48
1:M:267:ARG:O	1:M:469:LYS:NZ	2.44	0.48
2:N:22:ARG:O	2:N:25:THR:HB	2.14	0.48
1:I:226:ILE:HA	1:I:229:ARG:HD2	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:112:ILE:HA	1:A:124:MET:HE2	1.95	0.48
1:M:146:ALA:HB3	1:M:197:ILE:HG22	1.95	0.48
1:E:13:LEU:N	1:E:21:HIS:O	2.46	0.48
1:A:281:MET:HB3	1:A:291:LEU:HG	1.95	0.48
1:E:428:SER:OG	1:E:429:THR:N	2.47	0.48
2:F:292:THR:HB	2:F:298:THR:HA	1.96	0.48
1:A:155:LEU:HA	1:A:158:VAL:HG12	1.96	0.48
1:M:234:MET:HE3	1:M:234:MET:HB3	1.78	0.48
2:B:169:LEU:HB2	2:B:336:LEU:HB3	1.96	0.47
1:M:368:GLN:NE2	1:M:370:SER:O	2.47	0.47
2:N:175:ASN:OD1	2:N:175:ASN:N	2.41	0.47
1:A:348:ASP:OD1	1:A:348:ASP:N	2.45	0.47
1:E:201:TRP:HD1	1:E:202:GLU:H	1.62	0.47
2:B:272:ASP:OD2	2:B:343:TYR:OH	2.32	0.47
4:C:9:C:H2'	4:C:10:A:C8	2.50	0.47
3:L:4:DC:H2'	3:L:5:DG:C8	2.49	0.47
2:F:45:GLU:HB2	2:J:33:ARG:HH22	1.79	0.47
2:J:346:THR:HG22	2:J:353:GLN:HE21	1.79	0.47
1:A:117:ASP:CB	1:A:120:ARG:HG2	2.43	0.47
1:A:207:ASP:OD1	1:A:207:ASP:N	2.39	0.47
1:A:225:ASP:OD1	1:A:225:ASP:N	2.47	0.47
2:B:207:ASN:N	2:B:207:ASN:OD1	2.47	0.47
2:B:415:VAL:HG12	2:B:417:GLU:H	1.78	0.47
2:N:96:VAL:HG22	2:N:115:ARG:HH22	1.79	0.47
2:N:344:TYR:O	2:N:352:HIS:ND1	2.48	0.47
4:K:13:U:H2'	4:K:14:G:C8	2.50	0.47
1:E:360:GLU:OE2	1:I:324:LYS:NZ	2.48	0.47
1:I:122:VAL:HG22	1:I:158:VAL:HG23	1.97	0.47
1:I:187:LYS:NZ	1:I:485:ILE:O	2.47	0.47
2:J:167:ASN:ND2	2:J:338:ILE:O	2.48	0.47
1:A:383:VAL:HB	1:A:387:THR:HG21	1.96	0.47
1:M:155:LEU:HD13	1:M:211:ILE:HD13	1.95	0.47
1:M:459:ARG:NH1	4:O:4:C:OP1	2.47	0.47
1:E:196:PRO:HG2	1:E:482:ARG:HB2	1.96	0.47
2:J:114:SER:OG	2:J:115:ARG:N	2.45	0.47
1:A:334:VAL:HG23	1:A:359:THR:HG21	1.97	0.47
2:B:101:TYR:HE2	2:B:106:HIS:HA	1.79	0.47
2:B:326:ARG:HE	3:D:8:DA:H5"	1.79	0.47
1:M:455:PRO:HB2	1:M:457:PRO:HD2	1.96	0.47
2:N:22:ARG:HH12	2:N:26:LEU:HD11	1.80	0.47
1:E:151:PRO:HB2	1:E:154:LEU:HD23	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:19:VAL:HG11	2:B:61:ILE:HD12	1.97	0.47
1:M:285:ARG:NH1	1:M:326:HIS:O	2.48	0.47
1:M:416:ASN:HD21	1:M:453:ARG:CZ	2.28	0.47
1:A:305:PRO:HG2	3:D:10:DC:H4'	1.96	0.46
1:M:299:GLU:CD	1:M:299:GLU:H	2.22	0.46
1:M:303:ARG:O	4:O:13:U:H4'	2.15	0.46
2:J:266:ASP:N	2:J:266:ASP:OD1	2.46	0.46
4:G:2:U:H2'	4:G:3:A:O4'	2.15	0.46
2:N:64:THR:HG22	2:N:101:TYR:HB3	1.95	0.46
1:A:372:THR:O	2:B:339:THR:OG1	2.34	0.46
1:E:385:ARG:NH1	1:E:399:THR:O	2.48	0.46
2:F:310:LYS:HA	2:F:310:LYS:HD2	1.76	0.46
1:I:82:PRO:HG2	1:I:89:PRO:HD3	1.97	0.46
1:A:86:ASN:OD1	1:A:87:GLN:NE2	2.42	0.46
2:N:90:ARG:NH2	2:N:118:GLY:O	2.48	0.46
2:N:274:LYS:O	2:N:324:SER:HB3	2.16	0.46
3:L:19:DA:H4'	1:I:411:GLY:H	1.81	0.46
4:G:10:A:H2'	4:G:11:G:C8	2.49	0.46
2:N:180:ALA:HB3	2:N:211:PHE:HB3	1.97	0.46
2:F:33:ARG:NH1	2:J:31:ASP:OD2	2.48	0.46
1:A:118:HIS:CD2	1:A:179:ALA:HA	2.50	0.46
1:A:481:TYR:HA	1:A:484:TYR:HD2	1.81	0.46
1:M:423:HIS:O	1:M:426:SER:OG	2.34	0.46
2:F:102:ARG:O	2:F:106:HIS:HA	2.15	0.46
2:F:255:LEU:HD23	2:F:259:LEU:HD23	1.98	0.46
2:F:345:THR:HG22	2:F:351:PRO:HA	1.97	0.46
2:B:256:ARG:HG2	3:D:6:DT:H4'	1.98	0.46
1:A:198:GLN:NE2	1:A:199:ILE:O	2.47	0.46
1:E:403:MET:HA	1:E:404:PRO:HD3	1.80	0.46
2:F:113:VAL:HG21	2:F:144:LEU:HD22	1.98	0.46
2:B:168:MET:HE2	2:B:337:ILE:HG12	1.98	0.45
1:M:72:GLU:OE2	1:M:72:GLU:N	2.48	0.45
2:N:326:ARG:H	2:N:337:ILE:CG1	2.29	0.45
4:C:13:U:H2'	4:C:14:G:C8	2.51	0.45
2:B:346:THR:HG23	2:B:352:HIS:HA	1.99	0.45
2:F:307:LYS:HE3	2:F:312:GLU:HA	1.97	0.45
2:J:85:ASP:OD1	2:J:85:ASP:N	2.49	0.45
2:B:6:THR:OG1	2:B:7:ALA:N	2.48	0.45
2:N:15:GLY:HA2	2:N:102:ARG:HE	1.81	0.45
1:E:230:THR:O	1:E:234:MET:HB2	2.16	0.45
2:F:32:GLY:HA2	2:F:42:GLY:HA3	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:269:TRP:HA	2:F:276:LEU:HA	1.99	0.45
2:J:101:TYR:HA	2:J:107:SER:O	2.16	0.45
2:B:379:HIS:NE2	2:B:404:GLY:O	2.36	0.45
4:G:1:A:N6	1:E:182:PHE:HB3	2.31	0.45
2:J:168:MET:HG3	2:J:335:TYR:HB3	1.98	0.45
1:A:420:LEU:HD11	1:A:437:ILE:HD11	1.99	0.45
2:N:35:ARG:HG3	2:J:35:ARG:HB2	1.98	0.45
2:B:33:ARG:HH21	2:B:43:ILE:HD11	1.82	0.45
3:H:18:DT:N3	1:E:223:ILE:O	2.50	0.45
1:E:248:ARG:NH1	1:E:288:GLY:O	2.45	0.45
1:I:98:ASP:N	1:I:98:ASP:OD1	2.49	0.45
1:A:7:ILE:HG13	2:B:413:VAL:HG22	1.99	0.45
2:F:74:ASP:OD2	2:F:75:THR:OG1	2.34	0.45
2:F:269:TRP:CE2	2:F:276:LEU:HB3	2.51	0.45
2:J:417:GLU:HA	2:J:420:TRP:HB2	1.98	0.45
2:B:291:TYR:HD1	2:B:380:ARG:HG2	1.81	0.45
2:N:206:ILE:HG22	2:N:211:PHE:HA	1.99	0.45
2:J:171:LEU:HD11	2:J:334:TRP:HB2	1.99	0.45
2:J:351:PRO:O	2:J:352:HIS:ND1	2.50	0.45
4:C:7:C:H42	3:D:14:DG:H22	1.65	0.45
2:B:287:ARG:HE	2:B:299:ASP:HB3	1.83	0.44
2:B:380:ARG:HA	2:B:380:ARG:HD3	1.80	0.44
1:M:297:ARG:NH1	1:M:473:GLU:HA	2.32	0.44
1:M:387:THR:HB	1:M:398:TYR:HB2	1.99	0.44
1:E:454:LEU:HB3	1:E:458:ILE:HD11	2.00	0.44
2:F:283:ARG:H	2:F:283:ARG:HG2	1.52	0.44
2:B:115:ARG:HH21	2:B:117:ALA:HB2	1.83	0.44
2:B:184:TYR:HA	2:B:188:LYS:HE3	1.97	0.44
1:M:60:ILE:HG21	1:M:96:ILE:HD11	1.99	0.44
2:F:169:LEU:HB3	2:F:336:LEU:HG	1.98	0.44
1:I:339:THR:HG23	1:I:458:ILE:HD12	1.98	0.44
2:N:104:SER:OG	2:N:105:ASP:N	2.49	0.44
2:N:250:ARG:NH2	4:O:16:C:O2	2.40	0.44
2:N:380:ARG:O	2:N:380:ARG:NH1	2.50	0.44
3:L:7:DC:H2'	3:L:8:DA:C8	2.52	0.44
2:F:62:LYS:HA	2:F:62:LYS:HD2	1.78	0.44
2:F:267:LEU:HD22	2:F:278:PHE:HA	1.99	0.44
2:F:422:LYS:HB3	2:F:422:LYS:HE3	1.80	0.44
1:I:51:LYS:NZ	1:I:202:GLU:OE2	2.48	0.44
1:I:429:THR:OG1	1:I:432:GLN:OE1	2.35	0.44
2:J:187:ARG:H	2:J:187:ARG:CD	2.29	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:133:LEU:HD23	1:A:136:MET:HE3	2.00	0.44
1:M:5:THR:OG1	2:N:410:HIS:O	2.31	0.44
1:M:108:LYS:HD2	1:M:108:LYS:HA	1.74	0.44
3:L:8:DA:OP1	2:J:326:ARG:NH1	2.50	0.44
2:N:177:MET:HG3	2:N:236:THR:HG22	2.00	0.44
1:E:376:LEU:HD13	2:F:372:ARG:HG3	1.99	0.44
2:B:194:LEU:HD23	2:B:194:LEU:HA	1.88	0.44
3:H:15:DC:N3	3:H:16:DA:N6	2.65	0.44
2:B:267:LEU:HD23	2:B:279:ARG:H	1.82	0.44
2:F:127:ASP:HB2	2:F:132:LEU:HD21	2.00	0.44
1:A:160:ASN:HB3	1:A:214:LYS:HG2	1.98	0.44
1:A:248:ARG:NH1	1:A:288:GLY:O	2.51	0.44
2:B:62:LYS:HD3	2:B:62:LYS:HA	1.79	0.44
3:H:9:DG:H3'	1:E:368:GLN:HG3	1.98	0.44
1:I:266:TYR:HE1	1:I:277:SER:HB3	1.82	0.44
2:J:379:HIS:NE2	2:J:404:GLY:O	2.51	0.44
1:A:450:MET:HE2	1:A:450:MET:HB3	1.70	0.44
4:C:5:U:H2'	4:C:6:G:C8	2.53	0.44
2:N:35:ARG:HH11	2:J:34:SER:HG	1.62	0.43
3:P:7:DC:H2'	3:P:8:DA:C8	2.53	0.43
1:E:117:ASP:HB3	1:E:120:ARG:HG2	1.99	0.43
1:I:281:MET:HA	1:I:290:VAL:O	2.18	0.43
2:B:124:LEU:HD12	2:B:124:LEU:HA	1.86	0.43
1:E:11:PRO:HG3	1:E:439:SER:HA	2.00	0.43
1:E:157:ARG:NH2	1:E:160:ASN:O	2.51	0.43
2:F:102:ARG:HG2	2:F:104:SER:H	1.82	0.43
1:I:388:PHE:HA	1:I:396:LEU:O	2.17	0.43
1:E:54:GLU:O	1:E:58:LYS:HD2	2.17	0.43
2:F:147:PRO:HD2	2:F:153:TYR:HE1	1.84	0.43
3:D:12:DG:H2'	3:D:13:DT:H71	2.00	0.43
4:G:5:U:OP1	1:E:459:ARG:NH2	2.49	0.43
2:J:11:ILE:HA	2:J:14:ILE:HG22	2.01	0.43
1:M:369:GLU:HG2	1:M:453:ARG:HH12	1.83	0.43
2:N:163:ASP:OD1	2:N:163:ASP:N	2.51	0.43
2:F:100:PHE:HB2	2:F:109:TYR:HB2	1.99	0.43
2:N:201:ARG:HH21	2:N:220:SER:HB2	1.83	0.43
1:E:372:THR:HB	1:E:396:LEU:HD21	2.00	0.43
2:J:266:ASP:OD2	2:J:287:ARG:NH2	2.37	0.43
1:M:401:GLY:HA2	1:M:415:PRO:HG3	1.99	0.43
4:O:7:C:H2'	4:O:8:A:H8	1.84	0.43
1:E:153:LYS:HA	1:E:156:GLU:HG2	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:94:LEU:HD21	2:J:56:MET:HG2	2.01	0.43
2:J:319:ARG:C	2:J:343:TYR:O	2.62	0.43
1:I:447:SER:OG	1:I:448:THR:N	2.51	0.43
2:J:34:SER:OG	2:J:35:ARG:N	2.52	0.43
2:J:169:LEU:HD23	2:J:338:ILE:HD11	1.99	0.43
1:E:297:ARG:HD2	1:E:297:ARG:HA	1.76	0.43
1:I:133:LEU:HD23	1:I:136:MET:HE3	2.00	0.43
2:J:255:LEU:HD12	2:J:255:LEU:HA	1.86	0.43
1:M:297:ARG:HE	1:M:477:ILE:HD11	1.84	0.43
1:E:25:ARG:NH1	1:E:77:MET:O	2.52	0.43
1:E:108:LYS:H	1:E:108:LYS:HG2	1.63	0.43
2:F:121:GLU:HB3	2:F:122:ARG:H	1.65	0.43
2:J:308:ASN:ND2	2:J:311:ASP:O	2.52	0.43
2:J:382:LEU:HG	2:J:383:THR:HG23	2.01	0.43
1:M:73:LYS:HE3	2:N:421:VAL:HG21	2.01	0.42
1:M:152:VAL:HG23	1:M:202:GLU:HG2	2.01	0.42
1:I:220:SER:OG	1:I:221:ARG:N	2.51	0.42
1:A:380:ASN:HA	2:B:369:ALA:HB2	2.00	0.42
4:O:7:C:H2'	4:O:8:A:C8	2.55	0.42
4:G:3:A:H2'	4:G:4:C:C6	2.54	0.42
1:I:252:LEU:N	1:I:255:GLU:OE2	2.52	0.42
1:I:385:ARG:HD3	1:I:403:MET:HG2	2.01	0.42
2:J:370:ALA:O	2:J:374:GLN:HG2	2.19	0.42
2:B:237:LYS:HA	2:B:237:LYS:HD3	1.81	0.42
1:I:371:TYR:O	1:I:374:ARG:NH1	2.52	0.42
2:F:14:ILE:HD12	2:F:14:ILE:HA	1.90	0.42
1:A:38:LEU:HD23	1:A:38:LEU:HA	1.90	0.42
1:A:203:ASP:N	1:A:203:ASP:OD1	2.52	0.42
1:A:413:TYR:CZ	2:B:363:LYS:HE3	2.55	0.42
2:B:183:THR:OG1	2:B:184:TYR:N	2.45	0.42
1:M:351:ILE:HD13	1:M:351:ILE:HA	1.92	0.42
1:I:30:GLU:OE2	2:J:123:ARG:NH2	2.52	0.42
1:M:269:ALA:HB2	1:M:469:LYS:HD3	2.02	0.42
2:F:16:GLU:HA	2:F:19:VAL:HG12	2.01	0.42
2:F:132:LEU:HD23	2:F:132:LEU:HA	1.93	0.42
1:A:371:TYR:HB3	1:A:374:ARG:HH12	1.84	0.42
1:M:41:VAL:HG11	1:I:38:LEU:HG	2.00	0.42
2:F:85:ASP:O	2:F:89:TRP:N	2.51	0.42
1:I:232:ASN:OD1	1:I:448:THR:OG1	2.37	0.42
2:J:406:PRO:HA	2:J:407:PRO:HD3	1.90	0.42
2:B:124:LEU:HD23	2:B:126:ILE:HD11	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:265:SER:O	2:N:279:ARG:NH2	2.52	0.42
4:G:6:G:OP1	1:E:453:ARG:NE	2.52	0.42
1:E:260:TYR:HB2	1:E:281:MET:HG2	2.01	0.42
1:E:316:ILE:HD13	1:E:316:ILE:HA	1.95	0.42
2:F:55:ARG:NH2	2:F:142:ALA:O	2.53	0.42
2:F:169:LEU:HD23	2:F:336:LEU:HD21	2.02	0.42
1:E:188:ALA:HB1	1:E:471:VAL:HB	2.02	0.42
2:F:219:THR:OG1	2:F:222:CYS:O	2.31	0.42
1:I:456:ILE:HG23	1:I:457:PRO:HD3	2.01	0.42
2:J:182:THR:OG1	2:J:183:THR:N	2.53	0.42
4:C:14:G:H2'	4:C:15:A:H8	1.84	0.42
2:N:169:LEU:HD21	2:N:379:HIS:HB3	2.01	0.42
4:K:13:U:H5'	1:I:303:ARG:HD2	2.02	0.42
2:B:36:LEU:HD11	2:F:9:GLN:HB2	2.02	0.41
1:E:229:ARG:HH22	1:E:233:LEU:HB2	1.85	0.41
2:J:107:SER:HB3	2:J:109:TYR:HE2	1.85	0.41
2:J:188:LYS:H	2:J:188:LYS:HG2	1.62	0.41
1:A:114:LYS:C	1:A:116:PRO:HD2	2.45	0.41
1:M:15:PHE:HZ	1:M:24:PRO:HA	1.85	0.41
1:M:207:ASP:OD1	1:M:207:ASP:N	2.44	0.41
2:F:90:ARG:HH12	2:F:115:ARG:HB2	1.85	0.41
1:A:200:VAL:HG11	1:A:205:ILE:HG23	2.01	0.41
1:A:245:ILE:HD11	1:A:288:GLY:HA2	2.03	0.41
4:K:5:U:H2'	4:K:6:G:C8	2.55	0.41
2:F:212:TRP:HE1	2:F:251:PHE:HA	1.85	0.41
1:I:144:ASP:OD1	1:I:144:ASP:N	2.53	0.41
2:F:409:ILE:HD13	2:F:411:LEU:HD21	2.02	0.41
2:B:412:ASP:OD1	2:B:412:ASP:N	2.53	0.41
1:M:2:THR:O	1:M:2:THR:OG1	2.31	0.41
2:N:11:ILE:HD12	2:N:11:ILE:HA	1.90	0.41
1:E:374:ARG:HD3	1:E:374:ARG:HA	1.93	0.41
1:I:346:GLU:O	1:I:350:ILE:HG12	2.21	0.41
2:J:245:ILE:HA	2:J:248:GLN:HG2	2.02	0.41
1:A:351:ILE:HD13	1:A:351:ILE:HA	1.89	0.41
2:B:76:SER:HA	2:B:127:ASP:HA	2.03	0.41
4:K:3:A:H2'	4:K:4:C:C6	2.56	0.41
1:E:116:PRO:HD2	1:E:120:ARG:HH21	1.86	0.41
1:E:204:VAL:HG21	1:E:229:ARG:HE	1.86	0.41
1:E:382:PRO:HG2	1:E:409:TYR:CZ	2.56	0.41
1:A:339:THR:HG21	1:A:462:ARG:HH12	1.85	0.41
2:B:23:PHE:HD1	2:B:28:TRP:HB3	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:168:MET:SD	2:N:337:ILE:HG22	2.61	0.41
1:E:334:VAL:HG23	1:E:359:THR:HG21	2.02	0.41
1:E:341:ARG:H	1:E:341:ARG:HG2	1.74	0.41
1:E:429:THR:HG23	1:E:432:GLN:H	1.86	0.41
2:J:310:LYS:H	2:J:310:LYS:HG3	1.70	0.41
1:A:108:LYS:HD3	1:A:108:LYS:HA	1.93	0.41
2:B:373:GLY:HA2	2:B:376:ILE:HG12	2.02	0.41
1:M:277:SER:OG	1:M:278:ALA:N	2.54	0.41
2:N:250:ARG:HA	2:N:250:ARG:HD3	1.86	0.41
4:O:5:U:H2'	4:O:6:G:C8	2.56	0.41
4:O:16:C:H2'	4:O:17:G:C8	2.56	0.41
1:E:250:MET:HE3	1:E:250:MET:HB3	1.92	0.41
1:E:315:ILE:O	1:E:319:VAL:HG12	2.21	0.41
1:E:377:ARG:HA	2:F:164:ALA:HB1	2.03	0.41
2:F:56:MET:HE2	2:J:56:MET:HE2	2.02	0.41
2:F:271:LYS:HA	2:F:271:LYS:HD2	1.80	0.41
2:F:323:PHE:CE2	2:F:325:PRO:HG3	2.56	0.41
1:I:29:SER:HA	1:I:89:PRO:HB3	2.03	0.41
2:N:267:LEU:HA	2:N:278:PHE:HA	2.01	0.41
2:N:326:ARG:HB2	2:N:337:ILE:CG1	2.47	0.41
1:E:144:ASP:OD1	1:E:144:ASP:N	2.53	0.41
1:E:154:LEU:HD13	1:E:154:LEU:HA	1.81	0.41
1:I:160:ASN:OD1	1:I:160:ASN:N	2.54	0.41
2:J:175:ASN:OD1	2:J:175:ASN:N	2.49	0.41
2:J:303:VAL:HG21	2:J:319:ARG:HH12	1.86	0.41
2:B:16:GLU:HA	2:B:61:ILE:HG21	2.03	0.40
1:M:181:ASN:OD1	4:O:1:A:N6	2.54	0.40
1:M:418:LEU:H	1:M:418:LEU:HG	1.75	0.40
2:F:255:LEU:HB3	2:F:327:PHE:HE1	1.86	0.40
2:J:280:ALA:O	2:J:283:ARG:NE	2.55	0.40
2:N:367:LYS:NZ	2:N:424:LYS:O	2.41	0.40
1:E:5:THR:OG1	1:E:388:PHE:O	2.36	0.40
2:F:47:MET:HE2	2:F:50:GLY:H	1.85	0.40
2:F:191:ALA:O	2:F:195:ASN:ND2	2.43	0.40
1:I:263:ILE:HB	1:I:338:LYS:HG3	2.03	0.40
2:J:90:ARG:NH2	2:J:116:ASP:O	2.54	0.40
1:A:263:ILE:HB	1:A:338:LYS:HG3	2.03	0.40
1:E:120:ARG:O	1:E:124:MET:HG3	2.21	0.40
1:E:189:LYS:HE2	1:E:189:LYS:HB3	1.98	0.40
2:F:290:ALA:HA	2:F:299:ASP:HB2	2.03	0.40
2:F:312:GLU:H	2:F:312:GLU:HG2	1.73	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:C:10:A:H2'	4:C:11:G:C8	2.57	0.40
2:B:287:ARG:HA	2:B:287:ARG:HD2	1.86	0.40
2:N:173:LEU:HD23	2:N:173:LEU:HA	1.94	0.40
1:E:372:THR:HG22	1:E:391:LEU:HD12	2.04	0.40
2:J:177:MET:HB3	2:J:234:ILE:HG22	2.02	0.40
1:M:34:LEU:HD23	1:M:245:ILE:HD11	2.04	0.40
1:M:295:ARG:NE	1:M:479:ALA:H	2.19	0.40
2:N:10:ILE:HD12	2:N:10:ILE:HA	1.94	0.40
1:E:369:GLU:HB3	1:E:419:LEU:HD21	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	465/485 (96%)	435 (94%)	30 (6%)	0	100	100
1	E	464/485 (96%)	397 (86%)	67 (14%)	0	100	100
1	I	462/485 (95%)	436 (94%)	26 (6%)	0	100	100
1	M	462/485 (95%)	428 (93%)	34 (7%)	0	100	100
2	B	403/442 (91%)	352 (87%)	51 (13%)	0	100	100
2	F	403/442 (91%)	339 (84%)	64 (16%)	0	100	100
2	J	383/442 (87%)	347 (91%)	36 (9%)	0	100	100
2	N	383/442 (87%)	337 (88%)	46 (12%)	0	100	100
All	All	3425/3708 (92%)	3071 (90%)	354 (10%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	395/408 (97%)	390 (99%)	5 (1%)	65 82
1	E	394/408 (97%)	389 (99%)	5 (1%)	65 82
1	I	394/408 (97%)	394 (100%)	0	100 100
1	M	394/408 (97%)	388 (98%)	6 (2%)	60 79
2	B	348/380 (92%)	344 (99%)	4 (1%)	70 84
2	F	348/380 (92%)	346 (99%)	2 (1%)	84 92
2	J	335/380 (88%)	333 (99%)	2 (1%)	84 92
2	N	335/380 (88%)	330 (98%)	5 (2%)	60 79
All	All	2943/3152 (93%)	2914 (99%)	29 (1%)	71 86

All (29) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	64	SER
1	A	112	ILE
1	A	115	GLU
1	A	280	GLN
1	A	414	ASP
2	B	24	LEU
2	B	47	MET
2	B	171	LEU
2	B	371	LEU
1	M	84	LEU
1	M	95	GLU
1	M	128	GLU
1	M	414	ASP
1	M	418	LEU
1	M	468	LEU
2	N	23	PHE
2	N	24	LEU
2	N	26	LEU
2	N	168	MET

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Mol	Chain	Res	Type
2	N	324	SER
1	E	154	LEU
1	E	234	MET
1	E	419	LEU
1	E	420	LEU
1	E	477	ILE
2	F	326	ARG
2	F	371	LEU
2	J	187	ARG
2	J	227	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (26) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	134	GLN
1	A	368	GLN
1	A	380	ASN
2	B	48	ASN
1	M	198	GLN
1	M	416	ASN
2	N	17	ASN
2	N	103	GLN
2	N	262	GLN
2	N	288	ASN
2	N	384	GLN
1	E	78	HIS
1	E	213	GLN
2	F	29	GLN
2	F	93	ASN
2	F	248	GLN
2	F	257	GLN
2	F	288	ASN
2	F	333	GLN
2	F	353	GLN
1	I	224	GLN
1	I	444	ASN
2	J	48	ASN
2	J	106	HIS
2	J	288	ASN
2	J	353	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
4	C	18/20 (90%)	5 (27%)	0
4	G	18/20 (90%)	3 (16%)	0
4	K	17/20 (85%)	1 (5%)	0
4	O	18/20 (90%)	3 (16%)	0
All	All	71/80 (88%)	12 (16%)	0

All (12) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
4	O	15	A
4	O	16	C
4	O	17	G
4	K	14	G
4	G	2	U
4	G	6	G
4	G	15	A
4	C	2	U
4	C	13	U
4	C	14	G
4	C	16	C
4	C	19	U

There are no RNA pucker outliers to report.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 4 ligands modelled in this entry, 4 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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.