



Full wwPDB EM Validation Report ⓘ

Jul 16, 2025 – 11:16 AM JST

PDB ID : 8JAS / pdb_00008jas
EMDB ID : EMD-36133
Title : Structure of CRL2APPBP2 bound with RxxGPAA degron (tetramer)
Authors : Zhao, S.; Zhang, K.; Xu, C.
Deposited on : 2023-05-07
Resolution : 3.54 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

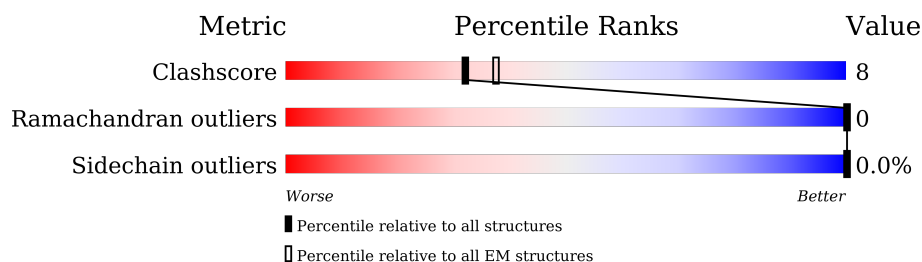
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.54 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

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 $\leq 5\%$.

Mol	Chain	Length	Quality of chain
1	A	585	81% 17% .
1	B	585	76% 22% .
1	J	585	76% 22% .
1	K	585	78% 19% .
2	E	745	21% 6% 73%
2	I	745	68% 17% 15%
2	L	745	14% . 82%
2	U	745	67% 18% 15%
3	C	118	53% 29% 18%

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Mol	Chain	Length	Quality of chain
3	G	118	
3	M	118	
3	Q	118	
4	D	96	
4	H	96	
4	N	96	
4	T	96	
5	F	18	
5	O	18	
5	S	18	
6	R	108	
6	V	108	

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 39287 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 Amyloid protein-binding protein 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	572	Total	C	N	O	S	0	0
			4622	2951	797	853	21		
1	B	572	Total	C	N	O	S	0	0
			4622	2951	797	853	21		
1	J	572	Total	C	N	O	S	0	0
			4619	2950	797	851	21		
1	K	571	Total	C	N	O	S	0	0
			4613	2946	795	851	21		

- Molecule 2 is a protein called Cullin-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	E	203	Total	C	N	O	S	0	0
			1726	1121	286	310	9		
2	I	636	Total	C	N	O	S	0	0
			5223	3332	878	975	38		
2	L	136	Total	C	N	O	S	0	0
			1161	751	192	210	8		
2	U	636	Total	C	N	O	S	0	0
			5223	3332	878	975	38		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	1	THR	-	expression tag	UNP Q13617
I	1	THR	-	expression tag	UNP Q13617
L	1	THR	-	expression tag	UNP Q13617
U	1	THR	-	expression tag	UNP Q13617

- Molecule 3 is a protein called Elongin-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	97	Total	C	N	O	S	0	0
			766	487	129	146	4		
3	G	99	Total	C	N	O	S	0	0
			782	495	132	152	3		
3	M	97	Total	C	N	O	S	0	0
			766	487	129	146	4		
3	Q	96	Total	C	N	O	S	0	0
			758	479	129	147	3		

- Molecule 4 is a protein called Elongin-C.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	D	90	Total	C	N	O	S	0	0
			709	456	114	133	6		
4	H	96	Total	C	N	O	S	0	0
			760	487	122	145	6		
4	N	91	Total	C	N	O	S	0	0
			718	461	116	135	6		
4	T	91	Total	C	N	O	S	0	0
			722	466	116	134	6		

- Molecule 5 is a protein called SUMO-XP_211896+AA C-degron.

Mol	Chain	Residues	Atoms				AltConf	Trace
5	S	9	Total	C	N	O	0	0
			65	39	14	12		
5	F	9	Total	C	N	O	0	0
			65	39	14	12		
5	O	6	Total	C	N	O	0	0
			32	19	6	7		

- Molecule 6 is a protein called E3 ubiquitin-protein ligase RBX1, N-terminally processed.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	R	81	Total	C	N	O	S	0	0
			661	417	119	116	9		
6	V	82	Total	C	N	O	S	0	0
			666	420	120	117	9		

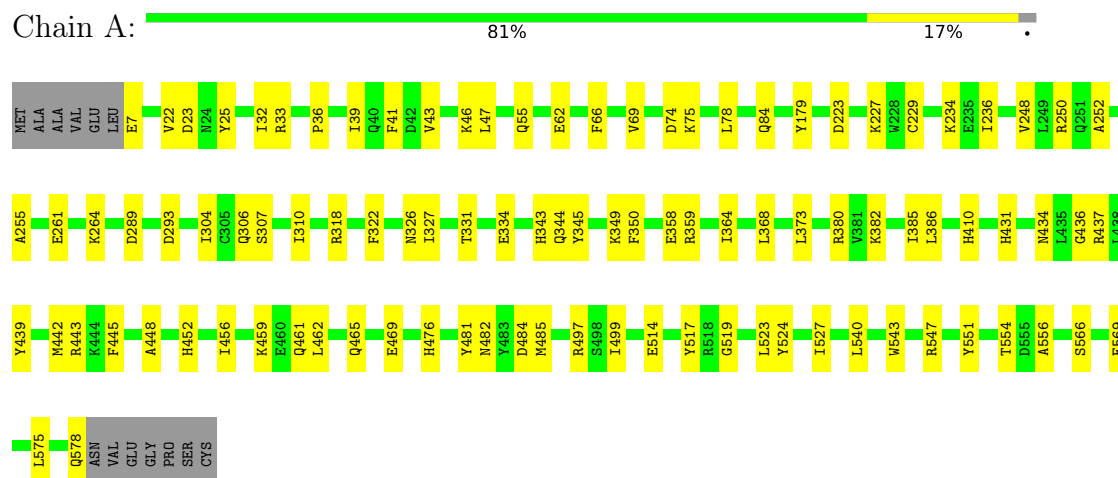
- Molecule 7 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
7	A	1	Total 1	Zn 1	0
7	R	3	Total 3	Zn 3	0
7	K	1	Total 1	Zn 1	0
7	V	3	Total 3	Zn 3	0

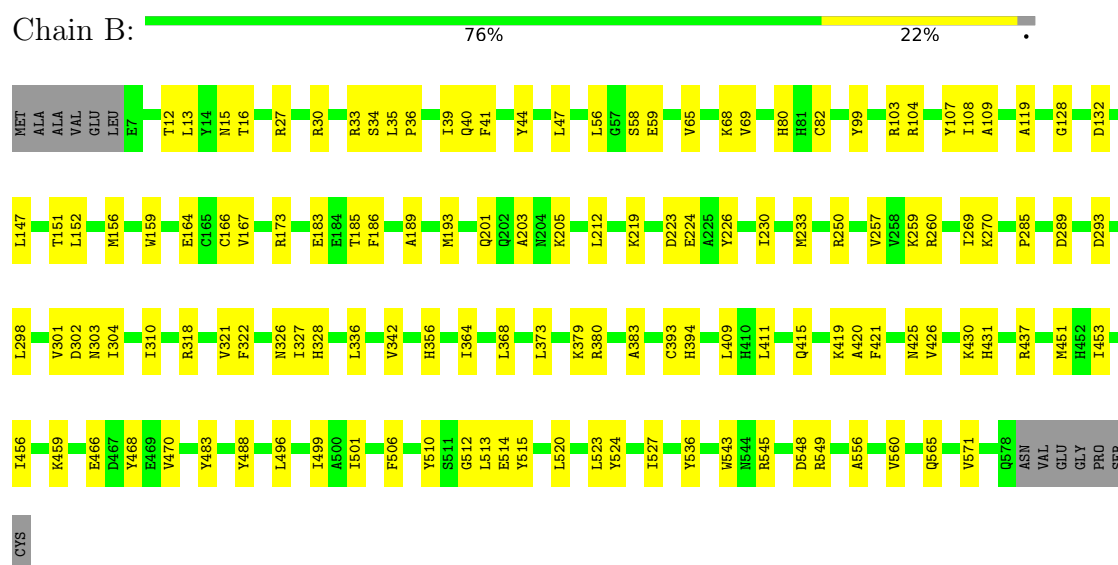
3 Residue-property plots [i](#)

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.

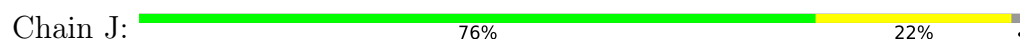
- Molecule 1: Amyloid protein-binding protein 2

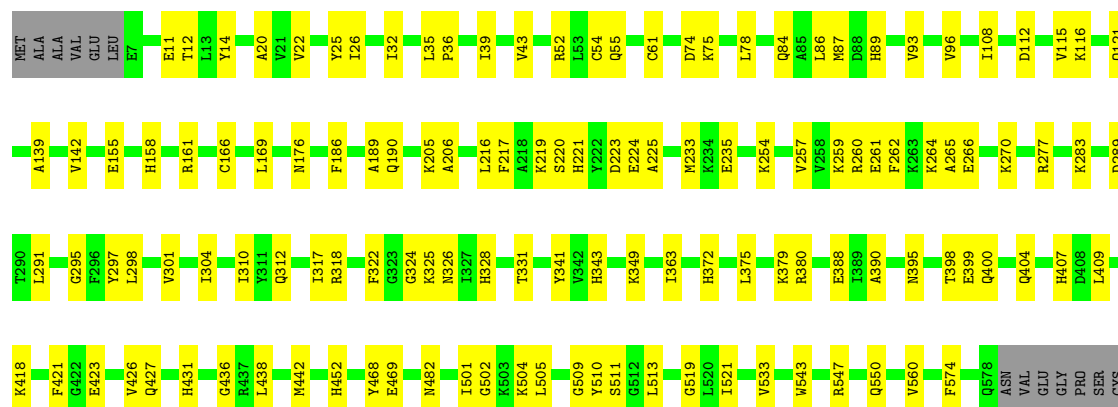


- Molecule 1: Amyloid protein-binding protein 2



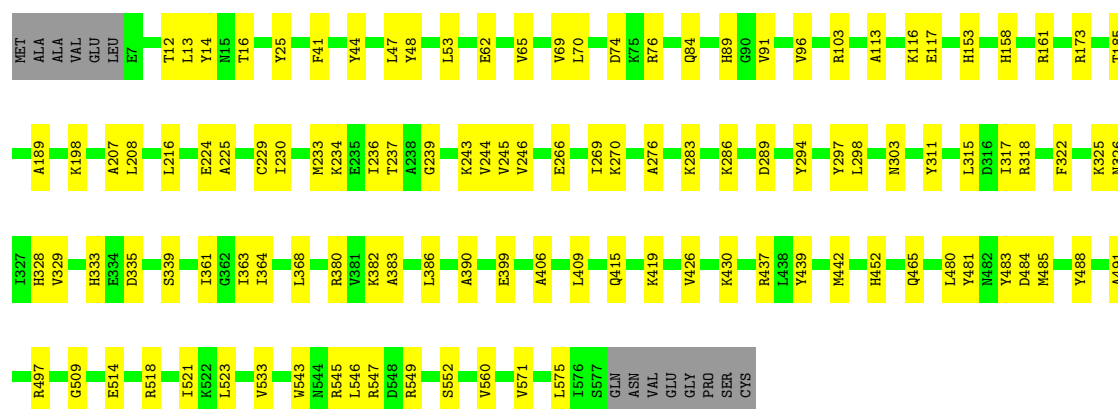
- Molecule 1: Amyloid protein-binding protein 2





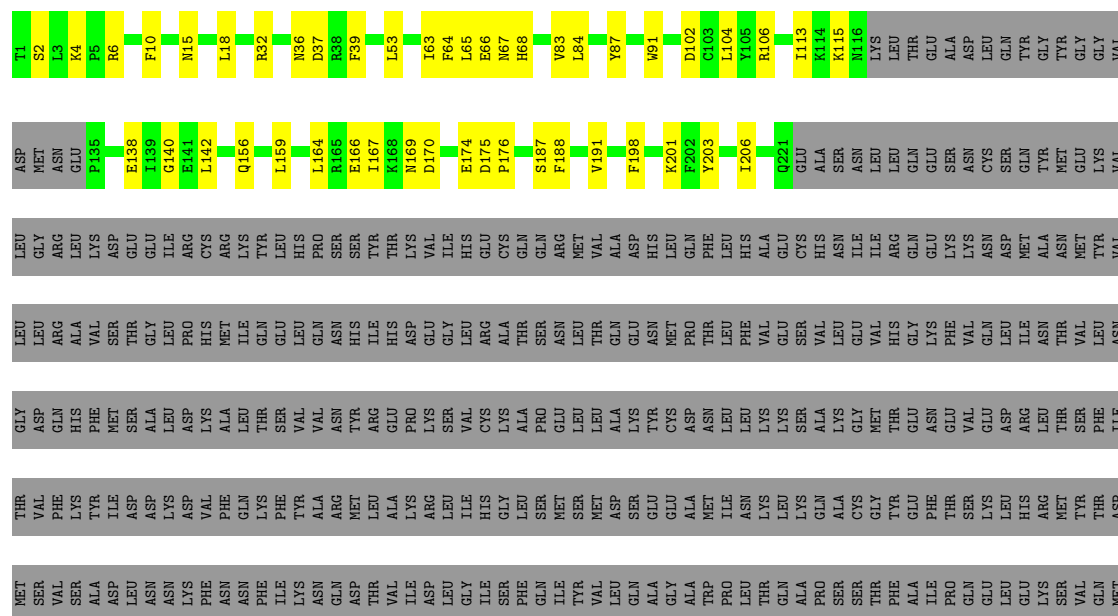
• Molecule 1: Amyloid protein-binding protein 2

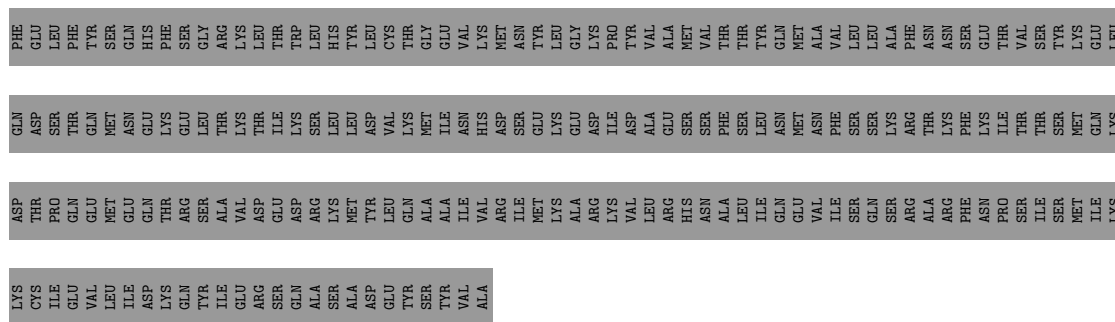
Chain K: 78% 19% •



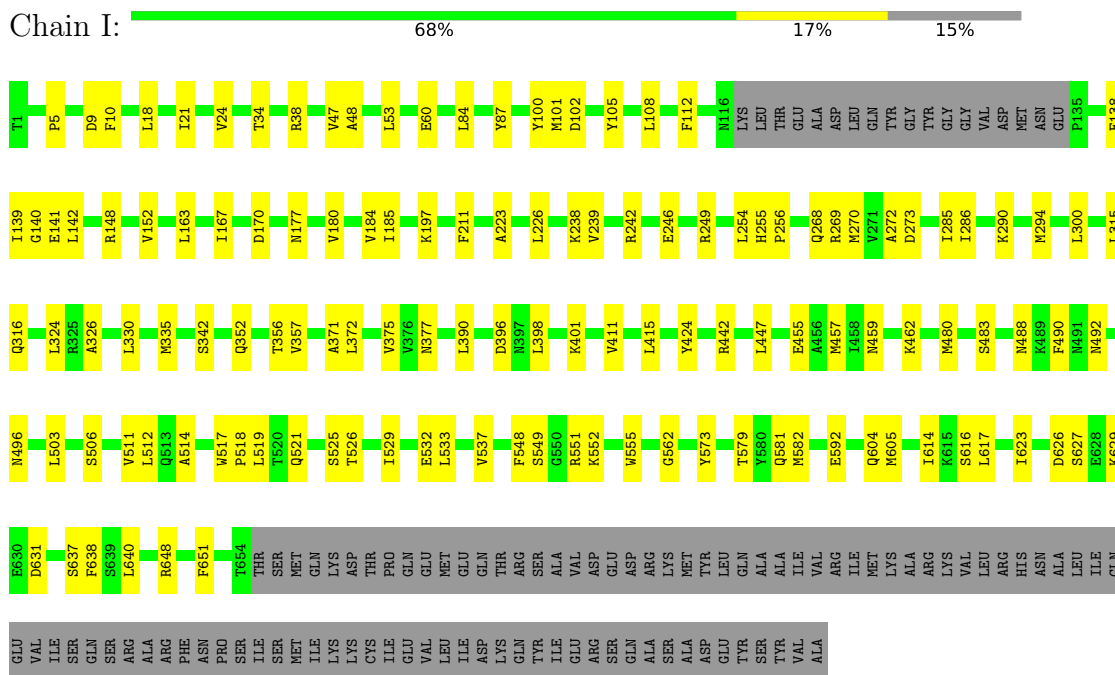
• Molecule 2: Cullin-2

Chain E: 21% 6% 73%

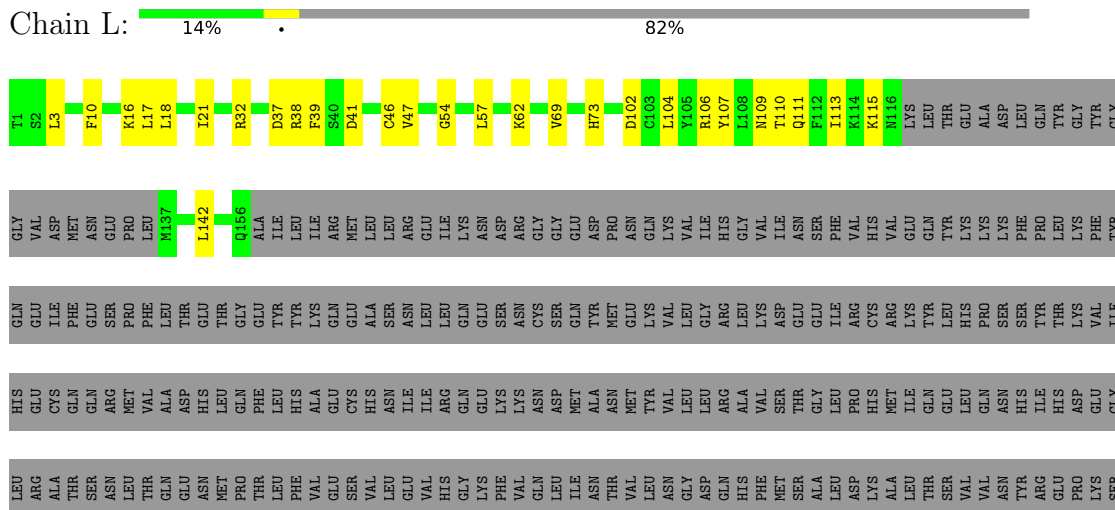




- Molecule 2: Cullin-2



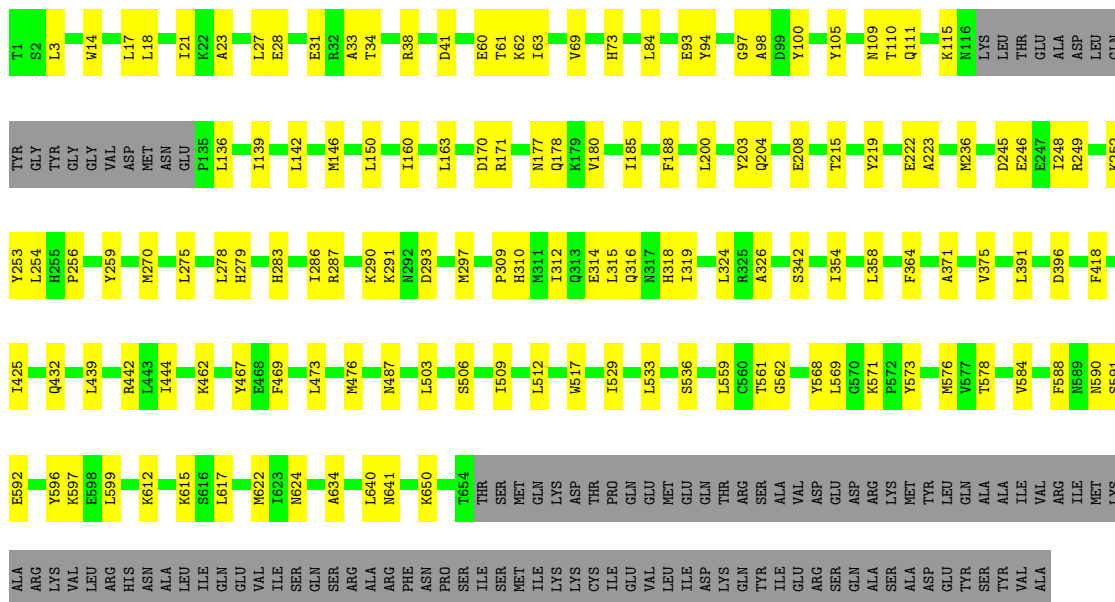
- Molecule 2: Cullin-2



[illegible]

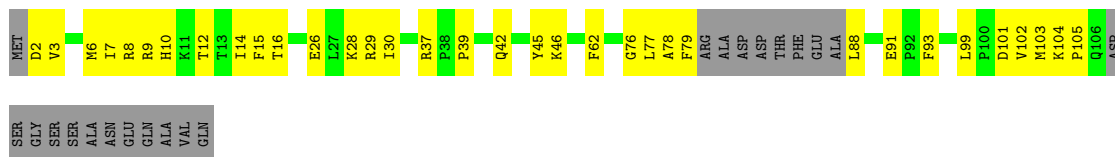
- Molecule 2: Cullin-2

Chain U: 67% 18% 15%



- Molecule 3: Elongin-B

Chain C: 53% 29% 18%



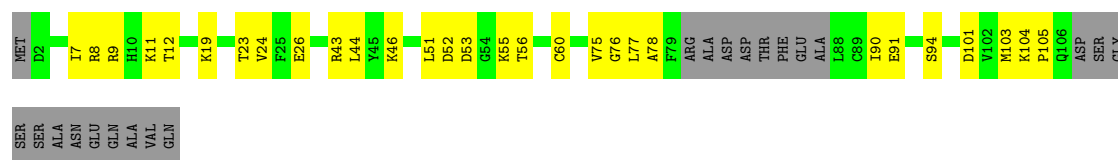
- Molecule 3: Elongin-B

Chain G:  68% 16% 16%



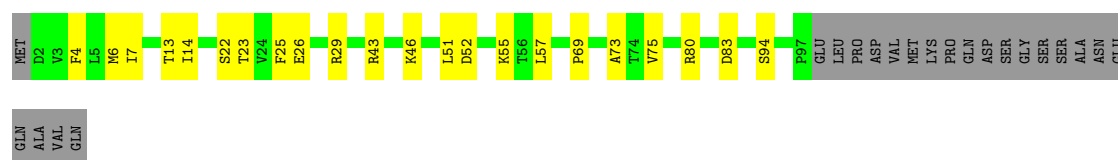
- Molecule 3: Elongin-B

Chain M:  58% 25% 18%



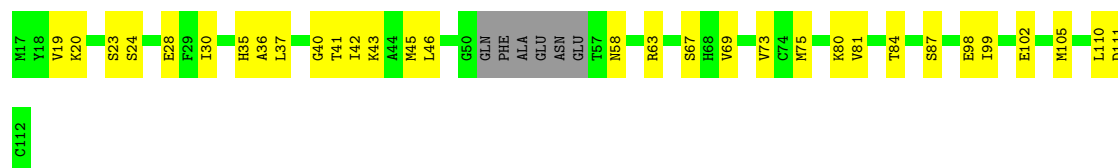
- Molecule 3: Elongin-B

Chain Q:  63% 19% 19%



- Molecule 4: Elongin-C

Chain D:  61% 32% 6%



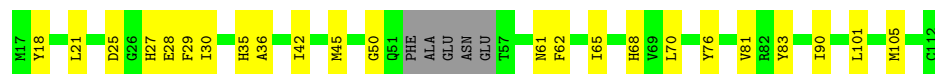
- Molecule 4: Elongin-C

Chain H:  76% 24%



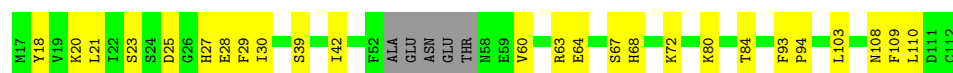
- Molecule 4: Elongin-C

Chain N:  71% 24% 5%



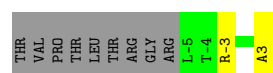
- Molecule 4: Elongin-C

Chain T: 



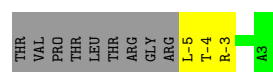
- Molecule 5: SUMO-XP_211896+AA C-degron

Chain S: 



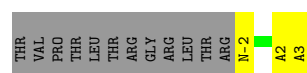
- Molecule 5: SUMO-XP_211896+AA C-degron

Chain F: 



- Molecule 5: SUMO-XP_211896+AA C-degron

Chain O: 



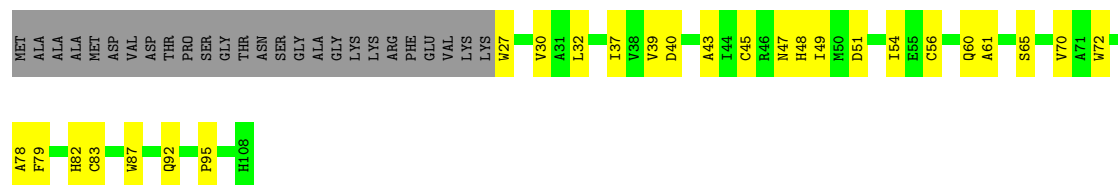
- Molecule 6: E3 ubiquitin-protein ligase RBX1, N-terminally processed

Chain R: 



- Molecule 6: E3 ubiquitin-protein ligase RBX1, N-terminally processed

Chain V: 



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	135810	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (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: ZN

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	0.14	0/4721	0.32	0/6370
1	B	0.14	0/4721	0.32	0/6370
1	J	0.08	0/4718	0.23	0/6366
1	K	0.10	0/4712	0.29	0/6358
2	E	0.13	0/1769	0.36	0/2388
2	I	0.11	0/5331	0.30	0/7185
2	L	0.09	0/1189	0.25	0/1608
2	U	0.11	0/5331	0.33	0/7185
3	C	0.16	0/781	0.45	0/1055
3	G	0.12	0/798	0.33	0/1080
3	M	0.11	0/781	0.33	0/1055
3	Q	0.11	0/773	0.34	0/1045
4	D	0.14	0/724	0.33	0/977
4	H	0.15	0/777	0.33	0/1050
4	N	0.10	0/733	0.27	0/989
4	T	0.11	0/738	0.32	0/995
5	F	0.14	0/65	0.38	0/85
5	O	0.09	0/32	0.36	0/42
5	S	0.12	0/65	0.33	0/85
6	R	0.12	0/681	0.32	0/929
6	V	0.16	0/686	0.35	0/936
All	All	0.12	0/40126	0.31	0/54153

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	4622	0	4562	63	0
1	B	4622	0	4562	88	0
1	J	4619	0	4560	88	0
1	K	4613	0	4554	72	0
2	E	1726	0	1721	30	0
2	I	5223	0	5206	82	0
2	L	1161	0	1149	19	0
2	U	5223	0	5206	92	0
3	C	766	0	773	25	0
3	G	782	0	777	12	0
3	M	766	0	773	24	0
3	Q	758	0	753	14	0
4	D	709	0	708	27	0
4	H	760	0	749	18	0
4	N	718	0	716	18	0
4	T	722	0	718	17	0
5	F	65	0	72	4	0
5	O	32	0	26	3	0
5	S	65	0	72	3	0
6	R	661	0	603	21	0
6	V	666	0	605	19	0
7	A	1	0	0	0	0
7	K	1	0	0	0	0
7	R	3	0	0	0	0
7	V	3	0	0	0	0
All	All	39287	0	38865	659	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 (659) 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:22:VAL:O	1:A:25:TYR:HB2	1.66	0.94
6:R:45:CYS:HB3	6:R:83:CYS:SG	2.20	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:4:LYS:HD2	4:D:105:MET:HE1	1.66	0.76
2:E:39:PHE:HE1	2:E:104:LEU:HA	1.51	0.75
6:V:37:ILE:HD12	6:V:78:ALA:HB3	1.69	0.73
1:J:74:ASP:HB3	2:L:115:LYS:HA	1.71	0.73
2:E:36:ASN:ND2	4:D:45:MET:SD	2.64	0.71
4:D:40:GLY:HA3	4:D:111:ASP:HB3	1.72	0.71
4:H:19:VAL:HG23	4:H:58:ASN:HB2	1.73	0.71
4:H:35:HIS:HA	4:H:81:VAL:HG21	1.73	0.70
3:C:7:ILE:HB	3:C:14:ILE:HB	1.73	0.70
2:I:552:LYS:HE3	6:R:36:ASP:HA	1.72	0.70
2:U:316:GLN:HG2	2:U:371:ALA:HB2	1.73	0.70
3:C:102:VAL:O	1:B:30:ARG:NH1	2.28	0.67
3:M:23:THR:HA	3:M:56:THR:HA	1.75	0.67
1:J:260:ARG:HH21	1:J:468:TYR:H	1.42	0.67
2:I:223:ALA:HB2	2:I:270:MET:HG2	1.76	0.67
1:A:74:ASP:HB2	2:E:115:LYS:HA	1.77	0.67
2:U:617:LEU:HB3	2:U:622:MET:HB2	1.76	0.67
2:I:316:GLN:HG2	2:I:371:ALA:HB2	1.76	0.66
1:B:156:MET:SD	1:B:201:GLN:NE2	2.69	0.65
1:A:437:ARG:HG3	5:S:-3:ARG:HD2	1.78	0.65
3:M:23:THR:HG22	3:M:56:THR:HG22	1.76	0.65
1:A:289:ASP:OD1	1:A:318:ARG:NH2	2.31	0.64
1:J:261:GLU:OE1	1:J:264:LYS:NZ	2.31	0.64
2:I:548:PHE:HB3	2:I:551:ARG:HD3	1.79	0.64
3:C:8:ARG:NH2	3:C:91:GLU:O	2.30	0.64
1:J:20:ALA:HA	1:K:103:ARG:HH12	1.63	0.64
1:J:291:LEU:HD22	1:J:310:ILE:HD11	1.80	0.63
1:K:236:ILE:HD11	1:K:245:VAL:HG13	1.81	0.63
1:A:443:ARG:NH1	1:A:484:ASP:OD2	2.31	0.63
3:G:8:ARG:NH2	3:G:91:GLU:O	2.32	0.63
1:B:233:MET:HE2	1:B:571:VAL:HG23	1.81	0.63
2:U:326:ALA:HB1	2:U:342:SER:HB2	1.81	0.63
1:J:54:CYS:SG	1:K:89:HIS:CD2	2.91	0.63
3:Q:7:ILE:HG13	3:Q:14:ILE:HB	1.82	0.62
6:V:45:CYS:HB3	6:V:83:CYS:SG	2.38	0.62
2:U:473:LEU:HA	2:U:476:MET:HG2	1.80	0.62
2:E:2:SER:O	2:E:6:ARG:NH2	2.33	0.62
4:N:18:TYR:HB3	4:N:30:ILE:HD11	1.80	0.62
3:Q:23:THR:HG22	3:Q:25:PHE:H	1.63	0.62
1:A:566:SER:OG	1:A:569:GLU:OE1	2.16	0.62
2:I:285:ILE:HG23	2:I:290:LYS:HD3	1.82	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:415:LEU:HG	2:I:457:MET:HE1	1.82	0.62
2:U:487:ASN:ND2	2:U:509:ILE:O	2.33	0.62
3:C:6:MET:HE1	4:D:75:MET:HE2	1.82	0.61
3:C:9:ARG:HG2	3:C:10:HIS:H	1.65	0.61
3:M:8:ARG:NH2	3:M:91:GLU:O	2.32	0.61
2:E:188:PHE:HB2	2:E:203:TYR:HD1	1.65	0.61
1:J:108:ILE:HG22	1:J:116:LYS:HG2	1.81	0.61
1:K:74:ASP:HB2	2:U:115:LYS:HA	1.82	0.61
1:J:502:GLY:HA3	1:J:513:LEU:HD21	1.82	0.61
1:K:117:GLU:OE2	1:K:161:ARG:NH1	2.33	0.61
1:K:189:ALA:HB1	1:K:208:LEU:HD11	1.82	0.61
1:J:318:ARG:NH1	1:J:328:HIS:O	2.34	0.61
1:J:35:LEU:HD11	4:N:101:LEU:HD11	1.82	0.60
1:K:481:TYR:HB2	1:K:491:ALA:HB2	1.83	0.60
3:C:7:ILE:O	3:C:14:ILE:N	2.30	0.60
1:J:206:ALA:HB2	1:J:235:GLU:HB3	1.83	0.60
4:H:20:LYS:HE3	4:H:22:ILE:HD11	1.81	0.60
3:Q:43:ARG:NH1	3:Q:51:LEU:O	2.27	0.60
1:A:358:GLU:OE2	1:A:382:LYS:NZ	2.34	0.60
2:E:32:ARG:HH12	4:D:58:ASN:HB3	1.65	0.60
1:J:233:MET:HE1	1:J:574:PHE:HB3	1.84	0.60
1:A:461:GLN:HG3	1:A:462:LEU:HD12	1.83	0.60
2:E:106:ARG:NH1	4:D:40:GLY:O	2.34	0.60
1:B:12:THR:HG23	1:B:15:ASN:H	1.66	0.60
1:A:66:PHE:HA	1:A:69:VAL:HG12	1.83	0.60
2:E:83:VAL:O	2:E:87:TYR:HB2	2.01	0.60
4:T:20:LYS:HD2	4:T:28:GLU:HB2	1.83	0.60
2:I:506:SER:O	6:R:27:TRP:N	2.35	0.59
6:R:37:ILE:HD13	6:R:78:ALA:H	1.67	0.59
1:J:166:CYS:HA	1:J:169:LEU:HD12	1.84	0.59
1:A:437:ARG:O	5:S:-3:ARG:NH1	2.35	0.59
2:I:627:SER:HB2	2:I:637:SER:H	1.67	0.59
3:Q:7:ILE:HG22	3:Q:75:VAL:HB	1.83	0.59
1:A:250:ARG:NH1	1:A:293:ASP:OD2	2.36	0.59
4:D:41:THR:HG22	4:D:110:LEU:HA	1.84	0.59
1:B:156:MET:HA	1:B:159:TRP:HD1	1.68	0.59
1:J:22:VAL:O	1:J:52:ARG:NH1	2.33	0.59
1:J:379:LYS:HB3	1:J:409:LEU:HB3	1.84	0.59
1:A:481:TYR:HA	1:A:485:MET:HB2	1.85	0.59
4:D:35:HIS:HA	4:D:81:VAL:HG21	1.85	0.59
6:R:35:TRP:HZ3	6:R:50:MET:HA	1.67	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:260:ARG:NH2	1:J:469:GLU:OE1	2.35	0.59
2:I:170:ASP:OD2	2:I:249:ARG:NH1	2.35	0.58
2:I:492:ASN:OD1	2:I:496:ASN:ND2	2.34	0.58
3:M:23:THR:OG1	3:M:26:GLU:OE1	2.19	0.58
2:L:102:ASP:OD1	2:L:109:ASN:ND2	2.36	0.58
1:B:289:ASP:OD1	1:B:318:ARG:NH2	2.30	0.58
1:B:173:ARG:NH1	1:B:185:THR:OG1	2.36	0.58
1:B:453:ILE:HA	1:B:456:ILE:HG12	1.84	0.58
3:Q:80:ARG:HH11	3:Q:83:ASP:HA	1.68	0.58
1:J:438:LEU:HG	1:J:442:MET:HE1	1.86	0.58
2:L:37:ASP:OD1	4:N:61:ASN:ND2	2.36	0.58
1:B:496:LEU:HD13	1:B:499:ILE:HD11	1.84	0.58
2:I:629:LYS:HE3	2:I:631:ASP:HB3	1.86	0.58
4:N:21:LEU:HB3	4:N:29:PHE:HB2	1.86	0.58
1:J:36:PRO:HB3	2:L:47:VAL:HG11	1.86	0.58
1:K:44:TYR:HA	1:K:47:LEU:HD12	1.86	0.58
4:T:39:SER:OG	4:T:110:LEU:O	2.22	0.58
2:U:245:ASP:OD2	2:U:249:ARG:NH2	2.37	0.58
2:I:330:LEU:HD22	2:I:335:MET:HE1	1.86	0.57
1:A:179:TYR:HE2	1:A:373:LEU:HD13	1.68	0.57
1:A:322:PHE:HB3	1:A:326:ASN:HD22	1.69	0.57
2:I:455:GLU:OE2	2:I:459:ASN:ND2	2.38	0.57
3:M:104:LYS:NZ	3:M:105:PRO:O	2.35	0.57
1:J:318:ARG:NH1	1:J:331:THR:OG1	2.37	0.57
4:T:72:LYS:NZ	4:T:94:PRO:O	2.32	0.57
2:U:110:THR:HG23	2:U:111:GLN:HG2	1.85	0.57
1:K:483:TYR:OH	1:K:518:ARG:NH1	2.38	0.57
3:M:11:LYS:HB3	4:N:27:HIS:HA	1.85	0.57
2:I:480:MET:HA	2:I:483:SER:HB3	1.87	0.57
1:K:484:ASP:OD1	1:K:485:MET:N	2.37	0.57
2:L:16:LYS:NZ	2:L:41:ASP:OD2	2.38	0.57
6:V:37:ILE:HG21	6:V:49:ILE:HD13	1.87	0.57
2:E:198:PHE:HB3	2:E:201:LYS:HB3	1.87	0.56
1:B:318:ARG:NH1	1:B:328:HIS:O	2.38	0.56
1:J:390:ALA:HB1	1:J:399:GLU:HA	1.85	0.56
3:Q:94:SER:OG	4:T:68:HIS:ND1	2.36	0.56
1:B:364:ILE:HG23	1:B:368:LEU:HD12	1.87	0.56
1:K:318:ARG:NH1	1:K:328:HIS:O	2.37	0.56
1:K:426:VAL:O	1:K:430:LYS:N	2.37	0.56
3:C:12:THR:HG22	4:D:28:GLU:HB3	1.86	0.56
1:A:32:ILE:HD13	1:A:43:VAL:HG11	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:59:GLU:HG3	1:B:65:VAL:HG11	1.88	0.56
1:B:35:LEU:HD11	4:H:101:LEU:HD11	1.88	0.56
1:K:173:ARG:NH1	1:K:185:THR:OG1	2.38	0.56
1:K:383:ALA:HB2	1:K:409:LEU:HB2	1.87	0.56
2:I:529:ILE:HG12	2:I:533:LEU:HB2	1.88	0.56
1:B:310:ILE:HD11	1:B:556:ALA:HB3	1.88	0.56
3:C:14:ILE:HA	4:D:30:ILE:HG22	1.88	0.56
4:T:18:TYR:HB3	4:T:30:ILE:HD11	1.88	0.56
3:G:43:ARG:HH21	3:G:51:LEU:H	1.54	0.55
1:K:465:GLN:O	1:K:497:ARG:NH2	2.39	0.55
3:G:23:THR:HA	3:G:56:THR:HA	1.88	0.55
2:U:204:GLN:HA	2:U:208:GLU:HB3	1.88	0.55
1:J:326:ASN:H	1:J:363:ILE:HD11	1.72	0.55
4:T:42:ILE:HD11	4:T:60:VAL:HG21	1.89	0.55
1:B:183:GLU:OE2	1:B:219:LYS:NZ	2.39	0.55
1:J:375:LEU:HD12	1:J:379:LYS:HE3	1.89	0.55
1:B:415:GLN:NE2	6:V:47:ASN:OD1	2.40	0.55
1:K:325:LYS:HA	1:K:363:ILE:HD12	1.89	0.55
2:I:148:ARG:HA	2:I:152:VAL:HG12	1.87	0.55
1:J:418:LYS:HZ2	1:J:423:GLU:HA	1.72	0.55
1:J:547:ARG:HA	1:J:550:GLN:HG2	1.87	0.55
6:V:49:ILE:HD11	6:V:70:VAL:HG21	1.89	0.55
4:D:23:SER:OG	4:D:24:SER:N	2.40	0.55
2:I:177:ASN:HB3	2:I:180:VAL:HB	1.89	0.55
1:J:223:ASP:OD1	1:J:259:LYS:NZ	2.39	0.55
1:K:430:LYS:NZ	5:O:2:ALA:O	2.33	0.55
1:K:289:ASP:OD1	1:K:318:ARG:NH2	2.33	0.55
2:I:286:ILE:HD11	2:I:315:LEU:HD13	1.89	0.55
3:G:46:LYS:HB2	3:G:51:LEU:HD22	1.89	0.54
1:J:304:ILE:HD12	1:J:343:HIS:HA	1.89	0.54
1:A:499:ILE:HD12	1:A:517:TYR:HE1	1.72	0.54
1:B:33:ARG:O	1:B:68:LYS:NZ	2.40	0.54
2:I:18:LEU:HA	2:I:21:ILE:HG22	1.89	0.54
4:H:32:LYS:HB2	4:H:35:HIS:HD2	1.72	0.54
6:R:70:VAL:HG12	6:R:80:HIS:HA	1.89	0.54
1:J:277:ARG:HH22	1:J:560:VAL:HG23	1.72	0.54
2:U:290:LYS:HB2	2:U:293:ASP:HB2	1.88	0.54
1:B:128:GLY:O	1:B:132:ASP:HB2	2.07	0.54
1:A:459:LYS:HD3	1:A:469:GLU:HB3	1.88	0.54
2:E:15:ASN:HA	2:E:18:LEU:HD12	1.90	0.54
1:J:121:GLN:OE1	1:J:161:ARG:NH1	2.41	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:216:LEU:HB3	1:J:221:HIS:HB2	1.90	0.54
3:M:9:ARG:O	3:M:9:ARG:NH1	2.41	0.54
1:A:343:HIS:ND1	1:A:344:GLN:OE1	2.40	0.53
1:J:32:ILE:HA	1:J:35:LEU:HD13	1.90	0.53
1:B:285:PRO:HB3	1:B:322:PHE:HE1	1.73	0.53
1:K:380:ARG:NH1	5:O:3:ALA:OXT	2.40	0.53
1:K:13:LEU:HD11	4:T:103:LEU:HD21	1.90	0.53
4:T:80:LYS:O	4:T:84:THR:OG1	2.27	0.53
3:M:52:ASP:HB2	3:M:55:LYS:HE3	1.91	0.53
2:E:83:VAL:O	2:E:87:TYR:CB	2.57	0.53
2:E:166:GLU:HG2	2:E:176:PRO:HB3	1.90	0.53
1:A:310:ILE:HD11	1:A:556:ALA:HB3	1.91	0.53
6:R:79:PHE:HD2	6:R:84:ILE:HD13	1.73	0.53
2:U:612:LYS:HA	2:U:615:LYS:HG2	1.90	0.53
1:B:285:PRO:HD3	1:B:321:VAL:HG11	1.90	0.53
2:I:226:LEU:HD22	2:I:238:LYS:HD3	1.90	0.53
6:R:79:PHE:HE2	6:R:95:PRO:HD2	1.72	0.53
1:J:205:LYS:H	1:J:235:GLU:HG2	1.74	0.53
1:K:246:VAL:HG21	1:K:276:ALA:HB2	1.91	0.53
3:C:9:ARG:HD3	3:C:77:LEU:HD23	1.90	0.53
2:U:31:GLU:HG3	2:U:33:ALA:H	1.72	0.53
2:U:38:ARG:NH2	2:U:41:ASP:OD2	2.41	0.53
2:U:97:GLY:HA2	2:U:100:TYR:HB2	1.91	0.53
4:H:80:LYS:O	4:H:84:THR:OG1	2.25	0.53
2:I:242:ARG:O	2:I:246:GLU:N	2.41	0.53
2:I:377:ASN:ND2	2:I:424:TYR:O	2.41	0.53
1:J:482:ASN:ND2	1:J:519:GLY:O	2.42	0.53
2:U:160:ILE:HA	2:U:163:LEU:HB2	1.91	0.53
1:J:84:GLN:NE2	1:J:325:LYS:O	2.42	0.53
1:J:400:GLN:NE2	1:J:404:GLN:OE1	2.40	0.52
1:K:364:ILE:HG23	1:K:368:LEU:HD12	1.91	0.52
2:L:39:PHE:HE1	2:L:104:LEU:HA	1.73	0.52
6:V:43:ALA:HB3	6:V:79:PHE:HE1	1.74	0.52
4:N:35:HIS:HA	4:N:81:VAL:HG11	1.90	0.52
1:B:565:GLN:H	1:B:565:GLN:CD	2.16	0.52
2:U:396:ASP:OD2	2:U:442:ARG:NH1	2.43	0.52
2:E:188:PHE:HA	2:E:191:VAL:HG22	1.91	0.52
1:B:40:GLN:HE22	1:B:68:LYS:HE3	1.75	0.52
4:H:27:HIS:HB3	4:H:29:PHE:HE1	1.74	0.52
2:L:3:LEU:HD22	4:N:65:ILE:HG13	1.91	0.52
3:Q:22:SER:HB3	3:Q:57:LEU:HD12	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:80:LYS:O	4:D:84:THR:OG1	2.25	0.52
4:N:42:ILE:HA	4:N:45:MET:HG2	1.90	0.52
3:G:68:ARG:NH1	4:H:83:TYR:OH	2.43	0.52
1:J:155:GLU:OE2	1:J:158:HIS:ND1	2.33	0.52
1:J:341:TYR:HE1	1:J:388:GLU:HG3	1.75	0.52
2:U:170:ASP:OD2	2:U:249:ARG:NH1	2.43	0.52
2:E:102:ASP:HB2	2:E:140:GLY:HA3	1.92	0.52
2:I:84:LEU:HD21	2:I:163:LEU:HG	1.92	0.52
1:A:75:LYS:HB3	1:A:78:LEU:HD12	1.91	0.52
1:B:257:VAL:O	1:B:260:ARG:NH1	2.43	0.52
6:V:56:CYS:SG	6:V:82:HIS:CE1	3.02	0.52
1:A:345:TYR:HA	1:A:350:PHE:HZ	1.75	0.52
3:G:98:GLU:HG2	3:G:100:PRO:HD2	1.91	0.52
2:U:444:ILE:HG12	2:U:559:LEU:HD13	1.92	0.52
1:A:33:ARG:NH1	1:A:62:GLU:OE1	2.43	0.51
1:A:482:ASN:ND2	1:A:519:GLY:O	2.43	0.51
1:B:13:LEU:HD21	4:H:103:LEU:HD11	1.91	0.51
3:Q:52:ASP:HB2	3:Q:55:LYS:HD2	1.92	0.51
3:C:99:LEU:HD22	4:D:98:GLU:HB3	1.91	0.51
1:J:322:PHE:HB3	1:J:326:ASN:HD22	1.74	0.51
6:V:27:TRP:N	2:U:506:SER:O	2.44	0.51
2:U:105:TYR:O	2:U:109:ASN:ND2	2.37	0.51
2:U:354:ILE:HG12	2:U:358:LEU:HD12	1.92	0.51
1:A:261:GLU:HB3	1:A:264:LYS:HZ3	1.74	0.51
1:B:514:GLU:HB2	1:B:543:TRP:CH2	2.45	0.51
2:I:525:SER:HB2	2:I:605:MET:HE2	1.92	0.51
1:J:52:ARG:HE	1:K:96:VAL:HG21	1.74	0.51
2:U:324:LEU:HD23	2:U:375:VAL:HG23	1.93	0.51
1:J:220:SER:HB3	1:J:427:GLN:HG2	1.93	0.51
2:I:401:LYS:HE3	2:I:447:LEU:HA	1.93	0.51
6:R:97:ASP:OD2	6:R:99:ARG:NH2	2.44	0.51
2:U:597:LYS:HD3	2:U:634:ALA:HB1	1.91	0.51
2:I:518:PRO:O	2:I:521:GLN:NE2	2.42	0.51
2:U:61:THR:HG21	2:U:105:TYR:HE2	1.76	0.51
2:U:219:TYR:HA	2:U:222:GLU:HB3	1.92	0.50
2:E:37:ASP:HA	4:D:63:ARG:HH12	1.76	0.50
2:I:139:ILE:HD13	2:I:142:LEU:HD21	1.92	0.50
1:J:220:SER:HB2	1:J:426:VAL:HB	1.92	0.50
1:K:16:THR:HG21	4:T:93:PHE:HB3	1.93	0.50
1:K:113:ALA:HA	1:K:116:LYS:HB2	1.93	0.50
2:U:62:LYS:HG3	2:U:142:LEU:HD21	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:364:ILE:HG23	1:A:368:LEU:HD12	1.92	0.50
1:B:510:TYR:HB3	1:B:513:LEU:HG	1.92	0.50
1:J:52:ARG:HB3	1:J:55:GLN:HB2	1.93	0.50
2:L:32:ARG:HG3	4:N:50:GLY:HA2	1.91	0.50
3:Q:6:MET:N	3:Q:73:ALA:O	2.43	0.50
2:U:94:TYR:O	2:U:98:ALA:N	2.43	0.50
1:B:336:LEU:HD22	1:B:356:HIS:ND1	2.26	0.50
1:K:298:LEU:HB3	1:K:303:ASN:HB3	1.93	0.50
1:B:548:ASP:O	1:K:552:SER:OG	2.29	0.50
1:J:283:LYS:HA	1:J:317:ILE:HD12	1.94	0.50
6:V:37:ILE:HG12	6:V:39:VAL:H	1.75	0.50
3:C:26:GLU:OE1	3:C:29:ARG:NH2	2.44	0.50
1:B:426:VAL:HG12	1:B:430:LYS:HE3	1.94	0.50
1:K:237:THR:HG22	1:K:239:GLY:H	1.76	0.50
2:U:69:VAL:O	2:U:73:HIS:N	2.40	0.50
1:K:207:ALA:HB2	1:K:244:VAL:HG13	1.93	0.50
3:M:12:THR:HA	4:N:28:GLU:HB3	1.93	0.50
1:B:488:TYR:HD2	1:B:523:LEU:HD12	1.76	0.50
1:K:322:PHE:HB3	1:K:326:ASN:HD22	1.76	0.50
1:K:488:TYR:HB3	1:K:523:LEU:HG	1.93	0.50
1:B:16:THR:HG21	4:H:93:PHE:HB3	1.93	0.49
1:A:445:PHE:HA	1:A:448:ALA:HB3	1.93	0.49
2:L:17:LEU:HD13	2:L:38:ARG:HD3	1.93	0.49
1:A:304:ILE:HA	1:A:307:SER:HB3	1.93	0.49
2:U:283:HIS:ND1	2:U:314:GLU:OE2	2.44	0.49
1:K:326:ASN:HB3	1:K:329:VAL:HG23	1.94	0.49
2:U:178:GLN:NE2	2:U:252:LYS:O	2.42	0.49
1:J:87:MET:HE1	1:J:93:VAL:HB	1.94	0.49
4:T:25:ASP:OD1	4:T:67:SER:OG	2.31	0.49
4:T:39:SER:HB3	4:T:42:ILE:HG22	1.95	0.49
3:M:44:LEU:HG	3:M:51:LEU:HD13	1.94	0.49
2:U:17:LEU:HD12	2:U:38:ARG:HD3	1.94	0.49
3:G:23:THR:OG1	3:G:26:GLU:OE1	2.31	0.49
1:A:547:ARG:NH2	1:A:551:TYR:OH	2.45	0.49
1:B:223:ASP:OD1	1:B:224:GLU:N	2.45	0.49
2:L:18:LEU:HA	2:L:21:ILE:HG22	1.95	0.49
2:U:275:LEU:HD12	2:U:278:LEU:HD12	1.94	0.49
3:G:31:VAL:HG11	3:G:77:LEU:HD11	1.95	0.49
3:C:93:PHE:O	4:D:67:SER:OG	2.30	0.49
2:I:10:PHE:HB2	2:I:53:LEU:HD13	1.95	0.49
2:U:146:MET:O	2:U:150:LEU:N	2.42	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:515:TYR:HE1	5:F:-5:LEU:HB3	1.77	0.48
1:B:41:PHE:HD1	1:B:69:VAL:HG13	1.77	0.48
1:J:26:ILE:HG13	1:K:62:GLU:HB2	1.95	0.48
1:K:514:GLU:HB2	1:K:543:TRP:CZ2	2.48	0.48
3:M:101:ASP:O	3:M:103:MET:N	2.42	0.48
4:N:83:TYR:HB3	4:N:90:ILE:HD13	1.94	0.48
2:U:596:TYR:HA	2:U:599:LEU:HB2	1.96	0.48
1:B:147:LEU:O	1:B:151:THR:HG23	2.13	0.48
2:I:511:VAL:HA	6:R:31:ALA:HB3	1.94	0.48
2:I:562:GLY:HA2	6:R:27:TRP:HD1	1.79	0.48
1:J:219:LYS:HA	1:J:421:PHE:HE1	1.78	0.48
1:A:380:ARG:NH1	5:S:3:ALA:O	2.44	0.48
2:E:10:PHE:HB2	2:E:53:LEU:HD13	1.95	0.48
1:B:466:GLU:HG2	1:B:501:ILE:HG12	1.95	0.48
2:I:167:ILE:HG21	2:I:211:PHE:HE1	1.78	0.48
4:T:63:ARG:HH22	2:U:33:ALA:HB1	1.78	0.48
2:E:37:ASP:HA	4:D:63:ARG:NH1	2.29	0.48
2:I:623:ILE:HG13	2:I:640:LEU:HA	1.96	0.48
2:U:588:PHE:HD2	2:U:640:LEU:HG	1.78	0.48
3:G:63:THR:H	3:G:66:THR:HG1	1.61	0.48
2:I:532:GLU:HG2	2:I:533:LEU:HG	1.95	0.48
1:J:216:LEU:HD13	1:J:224:GLU:HB3	1.94	0.48
3:C:101:ASP:O	3:C:103:MET:N	2.47	0.48
1:B:27:ARG:HE	3:G:99:LEU:HD22	1.79	0.48
1:B:44:TYR:HA	1:B:47:LEU:HD12	1.94	0.48
6:R:44:ILE:HD11	6:R:95:PRO:HG2	1.95	0.48
1:J:266:GLU:OE2	1:J:270:LYS:NZ	2.39	0.48
1:K:266:GLU:HB3	1:K:297:TYR:CZ	2.49	0.48
3:M:94:SER:OG	4:N:25:ASP:OD2	2.31	0.48
2:U:31:GLU:O	2:U:34:THR:OG1	2.24	0.48
2:E:138:GLU:O	2:E:142:LEU:N	2.46	0.48
1:J:407:HIS:HA	1:J:438:LEU:HD21	1.96	0.48
1:J:32:ILE:HG12	1:J:43:VAL:HG11	1.96	0.47
1:J:52:ARG:HA	1:K:91:VAL:HG23	1.96	0.47
1:B:226:TYR:HB2	1:B:259:LYS:HG3	1.95	0.47
1:B:270:LYS:HD2	1:B:560:VAL:HA	1.97	0.47
1:J:12:THR:HG22	1:J:14:TYR:H	1.78	0.47
2:U:275:LEU:HA	2:U:278:LEU:HD12	1.96	0.47
2:I:102:ASP:HB2	2:I:140:GLY:HA3	1.95	0.47
1:J:509:GLY:HA3	1:J:550:GLN:HE22	1.79	0.47
1:K:233:MET:HE3	1:K:571:VAL:HG22	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:156:GLN:HB2	2:E:206:ILE:HD11	1.95	0.47
1:B:524:TYR:HD1	1:B:527:ILE:HD11	1.80	0.47
1:J:395:ASN:HB3	1:J:398:THR:HG22	1.95	0.47
3:M:46:LYS:NZ	3:M:60:CYS:O	2.39	0.47
2:U:592:GLU:HG3	2:U:640:LEU:HD12	1.96	0.47
1:J:112:ASP:HB3	1:J:115:VAL:HG23	1.97	0.47
1:J:325:LYS:HA	1:J:363:ILE:HG13	1.96	0.47
4:N:36:ALA:HB1	4:N:42:ILE:HG21	1.97	0.47
1:A:331:THR:HA	1:A:334:GLU:HG2	1.97	0.47
6:R:80:HIS:HB2	6:R:83:CYS:HB2	1.96	0.47
3:C:28:LYS:HD3	3:C:39:PRO:HB3	1.95	0.47
2:I:87:TYR:HD2	2:I:184:VAL:HG22	1.80	0.47
2:I:517:TRP:HB3	2:I:519:LEU:HD23	1.95	0.47
1:K:269:ILE:HG12	1:K:294:TYR:HA	1.97	0.47
1:B:437:ARG:O	5:F:-3:ARG:NH1	2.48	0.47
2:I:138:GLU:HB2	2:I:141:GLU:HB3	1.97	0.47
4:D:20:LYS:HB2	4:D:28:GLU:HG3	1.97	0.46
1:B:304:ILE:HG21	1:B:342:VAL:HG12	1.96	0.46
2:I:21:ILE:HD11	2:I:101:MET:HG2	1.96	0.46
1:J:25:TYR:HE2	1:J:55:GLN:HE21	1.63	0.46
4:T:64:GLU:HG3	2:U:3:LEU:HB3	1.97	0.46
4:D:19:VAL:HG21	4:D:46:LEU:HD21	1.98	0.46
2:U:354:ILE:HA	2:U:358:LEU:HB2	1.98	0.46
1:J:521:ILE:HG23	1:J:533:VAL:HG13	1.97	0.46
2:U:279:HIS:HB3	2:U:310:HIS:CE1	2.50	0.46
2:U:287:ARG:HA	2:U:287:ARG:HD3	1.77	0.46
1:A:350:PHE:HB3	1:A:385:ILE:HG23	1.96	0.46
1:A:380:ARG:HE	1:A:431:HIS:CE1	2.34	0.46
1:A:575:LEU:O	1:A:578:GLN:NE2	2.43	0.46
1:K:545:ARG:O	1:K:549:ARG:HG3	2.15	0.46
1:A:452:HIS:HE1	1:A:476:HIS:HB3	1.80	0.46
4:D:73:VAL:HG11	4:D:110:LEU:HD12	1.98	0.46
3:M:94:SER:HB2	4:N:68:HIS:HB3	1.97	0.46
2:U:223:ALA:HB2	2:U:270:MET:HG3	1.98	0.46
2:E:169:ASN:HB3	2:E:174:GLU:HB3	1.98	0.46
3:C:2:ASP:OD1	3:C:3:VAL:N	2.47	0.46
6:V:32:LEU:HD12	2:U:512:LEU:HB2	1.97	0.46
2:E:91:TRP:CZ2	2:E:187:SER:HA	2.51	0.46
1:B:103:ARG:NH2	1:B:107:TYR:OH	2.49	0.46
4:H:48:GLY:HA2	2:I:100:TYR:CE1	2.50	0.46
2:I:185:ILE:HG21	2:I:254:LEU:HA	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:526:THR:OG1	2:I:604:GLN:O	2.32	0.46
1:J:289:ASP:OD1	1:J:318:ARG:NH2	2.35	0.46
1:K:12:THR:HG22	1:K:14:TYR:H	1.81	0.46
1:K:216:LEU:HD13	1:K:224:GLU:HG3	1.98	0.46
1:K:546:LEU:HD23	1:K:549:ARG:HD3	1.98	0.46
1:A:436:GLY:HA3	1:A:452:HIS:CD2	2.51	0.46
2:E:164:LEU:HD23	2:E:167:ILE:HD11	1.97	0.46
4:H:32:LYS:HB2	4:H:35:HIS:CD2	2.50	0.46
2:I:286:ILE:HD12	2:I:294:MET:HE2	1.98	0.46
1:J:295:GLY:HA2	1:J:298:LEU:HD12	1.97	0.46
1:K:230:ILE:HG22	1:K:234:LYS:HE3	1.96	0.46
1:K:437:ARG:NH2	5:O:-2:ASN:O	2.35	0.46
3:C:104:LYS:O	1:B:30:ARG:NH2	2.43	0.46
1:B:483:TYR:HD2	5:F:-4:THR:HG23	1.81	0.46
2:I:326:ALA:HB1	2:I:342:SER:HB2	1.98	0.46
3:Q:4:PHE:CE1	3:Q:69:PRO:HD3	2.51	0.46
2:U:315:LEU:O	2:U:319:ILE:HG12	2.16	0.46
1:A:436:GLY:HA3	1:A:452:HIS:HD2	1.81	0.46
3:C:39:PRO:HA	3:C:42:GLN:HE21	1.81	0.46
1:B:36:PRO:HG3	2:I:47:VAL:HG11	1.97	0.46
1:B:322:PHE:HE2	1:B:328:HIS:HB2	1.81	0.46
1:A:452:HIS:CE1	1:A:476:HIS:HB3	2.51	0.45
1:J:186:PHE:O	1:J:190:GLN:N	2.46	0.45
3:M:46:LYS:HG2	3:M:51:LEU:HD11	1.97	0.45
6:V:72:TRP:CD1	6:V:78:ALA:HB2	2.51	0.45
2:U:391:LEU:HD12	2:U:425:ILE:HD11	1.98	0.45
1:A:229:CYS:SG	1:A:255:ALA:HB3	2.56	0.45
1:B:56:LEU:HD21	1:B:82:CYS:SG	2.56	0.45
2:I:512:LEU:HD22	2:I:517:TRP:CE2	2.50	0.45
2:I:573:TYR:HB3	2:I:651:PHE:HE1	1.81	0.45
2:L:46:CYS:HA	2:L:54:GLY:HA3	1.98	0.45
6:V:27:TRP:HD1	2:U:562:GLY:HA3	1.82	0.45
2:I:239:VAL:HG11	2:I:300:LEU:HD21	1.99	0.45
2:I:335:MET:HE3	2:I:390:LEU:HD21	1.97	0.45
2:U:358:LEU:HD13	2:U:364:PHE:CD2	2.51	0.45
1:A:326:ASN:OD1	1:A:327:ILE:N	2.49	0.45
2:E:113:ILE:HG21	2:E:138:GLU:HA	1.98	0.45
4:D:69:VAL:HA	4:D:99:ILE:HD11	1.98	0.45
1:B:326:ASN:OD1	1:B:327:ILE:N	2.49	0.45
2:I:396:ASP:OD2	2:I:442:ARG:NH1	2.39	0.45
3:Q:22:SER:OG	3:Q:26:GLU:OE2	2.33	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:380:ARG:HD3	1:J:431:HIS:CD2	2.52	0.45
1:K:386:LEU:HB2	1:K:406:ALA:HB2	1.98	0.45
2:U:188:PHE:HB2	2:U:203:TYR:HD1	1.82	0.45
2:U:568:TYR:OH	2:U:641:ASN:O	2.31	0.45
1:B:411:LEU:HD22	6:V:54:ILE:HG23	1.99	0.45
1:B:421:PHE:HB3	1:B:425:ASN:HD22	1.82	0.45
2:U:358:LEU:HD13	2:U:364:PHE:HD2	1.81	0.45
2:U:571:LYS:HD3	2:U:573:TYR:CZ	2.51	0.45
2:U:588:PHE:HE1	2:U:599:LEU:HD11	1.81	0.45
1:A:524:TYR:HA	1:A:527:ILE:HG22	1.99	0.45
3:C:37:ARG:HG3	3:C:79:PHE:CZ	2.51	0.45
1:B:270:LYS:HD3	1:B:560:VAL:HG12	1.99	0.45
4:H:23:SER:OG	4:H:24:SER:N	2.48	0.45
1:J:260:ARG:NH2	1:J:468:TYR:H	2.12	0.45
1:J:270:LYS:HG2	1:J:560:VAL:HG12	1.99	0.45
2:L:16:LYS:HD3	2:L:38:ARG:HH12	1.82	0.45
2:U:561:THR:HG22	2:U:578:THR:HG22	1.97	0.45
2:E:64:PHE:HD2	2:E:65:LEU:HD12	1.81	0.45
4:D:98:GLU:HG2	4:D:99:ILE:N	2.32	0.45
1:B:36:PRO:HD2	1:B:39:ILE:HD12	1.99	0.45
1:B:298:LEU:HD22	1:B:303:ASN:HD22	1.80	0.45
2:I:105:TYR:HD2	2:I:108:LEU:HD23	1.82	0.45
6:R:92:GLN:HG3	1:J:349:LYS:HB3	1.98	0.45
1:K:70:LEU:O	1:K:76:ARG:NH2	2.39	0.45
1:B:545:ARG:O	1:B:549:ARG:HG3	2.17	0.45
4:H:30:ILE:HD12	4:H:30:ILE:H	1.82	0.45
2:I:246:GLU:HA	2:I:249:ARG:HG2	1.99	0.45
2:I:514:ALA:HA	6:R:32:LEU:HD11	1.99	0.45
2:U:31:GLU:HG3	2:U:33:ALA:N	2.32	0.45
1:B:80:HIS:HB3	1:B:322:PHE:HB3	2.00	0.44
1:B:99:TYR:CZ	1:B:103:ARG:HD2	2.52	0.44
1:B:193:MET:HE1	1:B:205:LYS:HG2	1.99	0.44
1:J:510:TYR:HB3	1:J:513:LEU:HG	1.98	0.44
1:K:41:PHE:HD1	1:K:69:VAL:HG13	1.82	0.44
1:K:439:TYR:HA	1:K:442:MET:HB2	1.99	0.44
2:U:185:ILE:HG21	2:U:254:LEU:HA	1.99	0.44
1:A:234:LYS:HA	1:A:575:LEU:HD11	1.98	0.44
1:B:166:CYS:HB3	1:B:189:ALA:HB2	1.98	0.44
1:J:20:ALA:HA	1:K:103:ARG:NH1	2.31	0.44
3:M:43:ARG:O	3:M:78:ALA:N	2.43	0.44
1:A:55:GLN:HG3	1:B:58:SER:HA	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:488:ASN:O	2:I:492:ASN:N	2.43	0.44
2:I:490:PHE:HZ	2:I:503:LEU:HD11	1.83	0.44
2:I:525:SER:HB2	2:I:605:MET:HB2	2.00	0.44
1:K:153:HIS:HB2	1:K:158:HIS:CE1	2.52	0.44
2:U:14:TRP:O	2:U:18:LEU:N	2.50	0.44
3:C:45:TYR:O	3:C:76:GLY:N	2.39	0.44
2:I:626:ASP:H	2:I:638:PHE:HA	1.82	0.44
6:R:92:GLN:HG3	1:J:349:LYS:HE3	2.00	0.44
6:V:40:ASP:OD1	6:V:48:HIS:NE2	2.46	0.44
1:A:229:CYS:SG	1:A:252:ALA:HA	2.57	0.44
1:B:520:LEU:HD13	1:B:536:TYR:CE2	2.53	0.44
2:I:372:LEU:HA	2:I:375:VAL:HG12	1.99	0.44
1:B:373:LEU:HD21	1:B:420:ALA:HB2	1.99	0.44
4:H:101:LEU:O	4:H:104:LEU:HB3	2.18	0.44
2:I:511:VAL:HG22	6:R:33:TRP:HD1	1.82	0.44
1:J:86:LEU:HA	1:J:89:HIS:HB3	2.00	0.44
1:K:234:LYS:HA	1:K:575:LEU:HD11	2.00	0.44
2:L:110:THR:HG23	2:L:111:GLN:HG2	2.00	0.44
1:A:236:ILE:HD11	1:A:248:VAL:HG11	1.99	0.44
2:I:268:GLN:HA	2:I:272:ALA:HB3	2.00	0.44
2:I:581:GLN:OE1	2:I:616:SER:OG	2.36	0.44
1:J:166:CYS:HB3	1:J:189:ALA:HB2	1.99	0.44
2:U:236:MET:HE3	2:U:297:MET:HG2	2.00	0.44
2:U:476:MET:HE1	2:U:517:TRP:HA	1.99	0.44
6:R:99:ARG:HH11	1:J:312:GLN:HG2	1.83	0.43
1:K:283:LYS:HA	1:K:317:ILE:HG23	2.00	0.43
3:M:7:ILE:HG22	3:M:75:VAL:HG13	1.98	0.43
2:U:248:ILE:HG22	2:U:252:LYS:HE2	2.00	0.43
1:A:410:HIS:NE2	1:A:434:ASN:HB3	2.33	0.43
2:U:177:ASN:HB3	2:U:180:VAL:HB	2.00	0.43
3:C:6:MET:HE2	3:C:15:PHE:CZ	2.53	0.43
2:I:9:ASP:OD1	2:I:9:ASP:N	2.51	0.43
1:J:11:GLU:O	4:N:76:TYR:OH	2.33	0.43
2:U:246:GLU:HA	2:U:249:ARG:HG2	1.98	0.43
2:U:462:LYS:HG3	2:U:467:TYR:HA	2.01	0.43
1:A:7:GLU:HB3	4:D:87:SER:HA	2.00	0.43
4:D:20:LYS:HA	4:D:30:ILE:HA	1.99	0.43
1:B:415:GLN:HE22	1:B:419:LYS:HE2	1.83	0.43
2:I:352:GLN:O	2:I:356:THR:N	2.45	0.43
1:J:257:VAL:HG21	1:J:297:TYR:HA	2.01	0.43
1:K:546:LEU:HA	1:K:549:ARG:HD3	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:U:576:MET:HE3	2:U:650:LYS:HE3	2.00	0.43
1:J:262:PHE:HA	1:J:265:ALA:HB3	2.00	0.43
1:K:415:GLN:HE22	1:K:419:LYS:HE3	1.83	0.43
1:A:22:VAL:HG21	1:A:46:LYS:HB3	2.00	0.43
1:K:48:TYR:HD1	1:K:53:LEU:HD21	1.84	0.43
1:K:270:LYS:HG2	1:K:560:VAL:HG12	2.00	0.43
3:M:19:LYS:HE2	3:M:19:LYS:HB2	1.87	0.43
4:T:108:ASN:OD1	4:T:109:PHE:N	2.51	0.43
2:E:175:ASP:N	2:E:175:ASP:OD1	2.51	0.43
3:C:46:LYS:HD2	3:C:62:PHE:CE1	2.54	0.43
3:C:105:PRO:HB3	1:B:34:SER:HB2	2.01	0.43
1:B:260:ARG:NH2	1:B:468:TYR:HB3	2.34	0.43
6:R:37:ILE:HB	6:R:78:ALA:HB3	2.00	0.43
1:K:153:HIS:HB2	1:K:158:HIS:HE1	1.84	0.43
2:U:62:LYS:HD2	2:U:142:LEU:HD11	2.01	0.43
2:U:312:ILE:HD11	2:U:364:PHE:HA	2.01	0.43
1:J:436:GLY:HA3	1:J:452:HIS:NE2	2.34	0.43
2:U:23:ALA:HB1	2:U:28:GLU:HB3	2.01	0.43
4:H:41:THR:HB	4:H:110:LEU:HA	2.01	0.43
1:J:35:LEU:HD23	1:J:39:ILE:HG21	1.99	0.43
1:J:505:LEU:HD12	1:J:505:LEU:HA	1.92	0.43
1:K:311:TYR:HD2	1:K:339:SER:HB3	1.84	0.43
3:M:23:THR:N	3:M:26:GLU:OE2	2.52	0.43
2:U:624:ASN:ND2	2:U:641:ASN:OD1	2.51	0.43
2:I:5:PRO:HG3	2:I:47:VAL:HG12	2.01	0.42
2:I:462:LYS:HB2	2:I:462:LYS:HE2	1.78	0.42
2:I:592:GLU:HG3	2:I:640:LEU:HB2	2.01	0.42
1:K:243:LYS:HG3	1:K:286:LYS:HE3	2.01	0.42
2:I:398:LEU:HD21	2:I:411:VAL:HG22	2.01	0.42
2:L:3:LEU:HD11	4:N:105:MET:HB3	2.01	0.42
6:V:60:GLN:O	6:V:65:SER:OG	2.35	0.42
1:A:514:GLU:HB2	1:A:543:TRP:CH2	2.54	0.42
2:U:60:GLU:HA	2:U:63:ILE:HG22	2.00	0.42
1:A:23:ASP:OD2	1:B:103:ARG:NH1	2.52	0.42
2:L:69:VAL:O	2:L:73:HIS:N	2.52	0.42
2:U:439:LEU:HD13	2:U:442:ARG:NH2	2.34	0.42
1:B:383:ALA:HB2	1:B:409:LEU:HB2	2.00	0.42
1:B:451:MET:HE2	1:B:451:MET:HA	2.00	0.42
1:J:176:ASN:O	1:J:372:HIS:NE2	2.53	0.42
1:J:217:PHE:CG	1:J:254:LYS:HD3	2.55	0.42
2:U:584:VAL:HG13	2:U:599:LEU:HD22	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:84:LEU:HD21	2:E:159:LEU:HA	2.01	0.42
1:B:164:GLU:HA	1:B:167:VAL:HG12	2.02	0.42
1:B:483:TYR:CD2	5:F:-4:THR:HG23	2.53	0.42
4:H:21:LEU:O	4:H:29:PHE:N	2.52	0.42
2:I:21:ILE:HA	2:I:24:VAL:HG22	2.00	0.42
1:J:501:ILE:HG13	1:J:504:LYS:HE3	2.01	0.42
1:K:225:ALA:O	1:K:229:CYS:N	2.51	0.42
2:L:106:ARG:HH22	2:L:107:TYR:HD1	1.67	0.42
2:U:256:PRO:HA	2:U:259:TYR:CZ	2.55	0.42
3:C:14:ILE:HG22	3:C:16:THR:HG23	2.02	0.42
4:D:69:VAL:HG11	4:D:102:GLU:HB3	2.02	0.42
1:B:104:ARG:O	1:B:108:ILE:HG12	2.20	0.42
1:B:250:ARG:NH1	1:B:293:ASP:OD2	2.45	0.42
2:I:549:SER:OG	6:R:106:TYR:O	2.30	0.42
1:J:298:LEU:HA	1:J:301:VAL:HG22	2.01	0.42
3:Q:46:LYS:HB2	3:Q:51:LEU:HD22	2.02	0.42
6:V:30:VAL:HG11	2:U:444:ILE:HD11	2.00	0.42
2:U:171:ARG:NH2	2:U:215:THR:OG1	2.52	0.42
1:A:36:PRO:HD2	1:A:39:ILE:HD12	2.02	0.42
1:B:512:GLY:HA2	1:B:515:TYR:HD2	1.85	0.42
2:I:269:ARG:NH2	2:I:273:ASP:OD1	2.52	0.42
2:I:324:LEU:HD23	2:I:375:VAL:HG23	2.01	0.42
1:K:509:GLY:HA3	1:K:547:ARG:HB3	2.01	0.42
3:Q:26:GLU:HA	3:Q:29:ARG:HG2	2.02	0.42
4:T:21:LEU:O	4:T:29:PHE:N	2.52	0.42
2:U:529:ILE:HG12	2:U:533:LEU:HB3	2.02	0.42
6:R:81:PHE:HA	6:R:84:ILE:HG22	2.01	0.42
1:K:311:TYR:CE2	1:K:335:ASP:HB3	2.55	0.42
3:M:24:VAL:HB	3:M:53:ASP:HA	2.02	0.42
2:U:84:LEU:HD23	2:U:84:LEU:HA	1.84	0.42
1:A:386:LEU:HD23	1:A:386:LEU:HA	1.87	0.42
1:A:452:HIS:O	1:A:456:ILE:HD12	2.19	0.42
2:E:63:ILE:O	2:E:66:GLU:HG3	2.20	0.42
3:C:78:ALA:HB2	3:C:88:LEU:HD21	2.02	0.42
3:G:4:PHE:CE1	3:G:69:PRO:HG3	2.55	0.42
3:M:8:ARG:HE	3:M:90:ILE:HG23	1.85	0.42
2:U:200:LEU:HD23	2:U:200:LEU:HA	1.91	0.42
2:U:503:LEU:HD22	2:U:536:SER:HA	2.02	0.42
1:B:269:ILE:HD12	1:B:269:ILE:HA	1.89	0.41
2:I:537:VAL:HG23	2:I:555:TRP:CE2	2.54	0.41
1:K:545:ARG:O	1:K:549:ARG:N	2.48	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:M:76:GLY:HA2	3:M:90:ILE:HD11	2.00	0.41
2:U:291:LYS:H	2:U:291:LYS:HG2	1.67	0.41
1:A:84:GLN:HG2	1:A:322:PHE:O	2.19	0.41
1:A:517:TYR:HB3	1:A:540:LEU:HD12	2.00	0.41
1:K:198:LYS:HA	1:K:198:LYS:HD3	1.81	0.41
1:K:315:LEU:HD11	1:K:333:HIS:ND1	2.35	0.41
6:V:87:TRP:CE2	6:V:95:PRO:HG3	2.54	0.41
2:U:590:ASN:OD1	2:U:591:SER:N	2.53	0.41
1:A:349:LYS:HB3	6:V:92:GLN:HG3	2.02	0.41
4:D:37:LEU:HD23	4:D:37:LEU:HA	1.86	0.41
1:B:193:MET:HE3	1:B:203:ALA:HB3	2.01	0.41
1:B:302:ASP:OD2	1:B:506:PHE:HB3	2.20	0.41
1:B:380:ARG:HD3	1:B:431:HIS:NE2	2.35	0.41
1:B:459:LYS:HB3	1:B:470:VAL:HG22	2.02	0.41
4:H:101:LEU:HD12	4:H:101:LEU:HA	1.89	0.41
2:I:614:ILE:HA	2:I:617:LEU:HD12	2.02	0.41
3:M:8:ARG:HH22	4:N:27:HIS:CD2	2.37	0.41
2:U:178:GLN:HA	2:U:253:TYR:HE1	1.85	0.41
1:B:230:ILE:HD13	1:B:230:ILE:HA	1.92	0.41
1:K:84:GLN:HG2	1:K:322:PHE:O	2.20	0.41
6:V:61:ALA:HB1	2:U:467:TYR:CD2	2.56	0.41
2:U:309:PRO:HA	2:U:312:ILE:HG22	2.02	0.41
1:A:465:GLN:HB3	1:A:497:ARG:HH22	1.85	0.41
1:B:108:ILE:HD11	1:B:119:ALA:HB2	2.03	0.41
1:K:452:HIS:ND1	1:K:480:LEU:HD22	2.36	0.41
3:Q:13:THR:OG1	4:T:27:HIS:NE2	2.53	0.41
2:U:286:ILE:HG22	2:U:318:HIS:ND1	2.36	0.41
1:A:306:GLN:HE22	1:A:554:THR:C	2.28	0.41
3:G:46:LYS:O	3:G:49:GLN:HG2	2.20	0.41
2:I:34:THR:O	2:I:38:ARG:HG2	2.20	0.41
2:I:648:ARG:HG3	2:I:651:PHE:HB3	2.02	0.41
1:J:139:ALA:HA	1:J:142:VAL:HG12	2.01	0.41
2:L:109:ASN:HA	2:L:113:ILE:HD12	2.02	0.41
2:U:27:LEU:N	2:U:93:GLU:OE1	2.53	0.41
2:U:136:LEU:HD23	2:U:136:LEU:HA	1.92	0.41
1:B:109:ALA:HB1	1:B:152:LEU:HD11	2.02	0.41
2:I:10:PHE:HE2	2:I:60:GLU:HG3	1.86	0.41
2:I:48:ALA:HB3	2:I:53:LEU:H	1.86	0.41
2:I:239:VAL:HG13	2:I:270:MET:HE1	2.01	0.41
1:A:482:ASN:HD21	1:A:523:LEU:HB2	1.86	0.41
2:E:170:ASP:HB2	2:E:176:PRO:HD3	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:43:LYS:HB2	4:D:43:LYS:HE2	1.84	0.41
1:B:186:PHE:CD1	1:B:212:LEU:HD21	2.56	0.41
2:I:255:HIS:CD2	2:I:256:PRO:HD2	2.55	0.41
2:L:62:LYS:HG2	2:L:142:LEU:HD21	2.03	0.41
2:U:569:LEU:HD23	2:U:569:LEU:H	1.86	0.41
1:A:25:TYR:CE1	1:A:47:LEU:HD11	2.56	0.41
1:A:439:TYR:HA	1:A:442:MET:HB3	2.02	0.41
4:D:36:ALA:HB1	4:D:42:ILE:HG21	2.03	0.41
1:B:260:ARG:HH21	1:B:468:TYR:HB3	1.86	0.41
1:B:301:VAL:O	1:B:303:ASN:N	2.54	0.41
1:B:379:LYS:HD2	1:B:409:LEU:HD22	2.02	0.41
1:J:61:CYS:HB3	1:J:96:VAL:HG11	2.02	0.41
1:J:511:SER:HA	1:J:543:TRP:HZ2	1.86	0.41
1:K:62:GLU:HG3	1:K:65:VAL:H	1.86	0.41
1:K:521:ILE:HG23	1:K:533:VAL:HG13	2.03	0.41
1:A:223:ASP:O	1:A:227:LYS:HG3	2.21	0.41
2:I:356:THR:HG23	2:I:357:VAL:HG13	2.03	0.41
2:U:18:LEU:HA	2:U:21:ILE:HG22	2.02	0.41
3:C:26:GLU:O	3:C:30:ILE:HG12	2.21	0.40
1:B:393:CYS:SG	1:B:394:HIS:N	2.95	0.40
2:I:108:LEU:HD12	2:I:112:PHE:HB3	2.03	0.40
1:J:75:LYS:HB3	1:J:78:LEU:HD12	2.03	0.40
1:K:25:TYR:CE2	1:K:47:LEU:HD11	2.57	0.40
1:J:84:GLN:NE2	1:J:324:GLY:O	2.54	0.40
2:U:391:LEU:HB3	2:U:418:PHE:HE1	1.86	0.40
1:A:359:ARG:HD3	1:A:359:ARG:HA	1.94	0.40
2:E:67:ASN:OD1	2:E:68:HIS:N	2.54	0.40
2:I:579:THR:HA	2:I:582:MET:HE2	2.03	0.40
4:N:62:PHE:CE2	4:N:70:LEU:HD21	2.56	0.40
2:U:432:GLN:HB2	2:U:469:PHE:CE1	2.56	0.40
1:A:41:PHE:HZ	1:A:78:LEU:HB2	1.86	0.40
1:B:35:LEU:HB2	1:B:40:GLN:HG3	2.03	0.40
2:I:197:LYS:HA	2:I:197:LYS:HD3	1.90	0.40
2:L:10:PHE:HE1	2:L:57:LEU:HD12	1.85	0.40
3:M:9:ARG:HB2	3:M:77:LEU:HD23	2.04	0.40
4:T:23:SER:OG	4:T:25:ASP:OD1	2.39	0.40
2:U:105:TYR:HD2	2:U:139:ILE:HG21	1.86	0.40
1:J:216:LEU:HB2	1:J:225:ALA:HB2	2.02	0.40
1:J:427:GLN:HE21	1:J:427:GLN:HB3	1.73	0.40
1:J:427:GLN:O	1:J:431:HIS:ND1	2.54	0.40
1:K:361:ILE:HG13	1:K:382:LYS:HD2	2.04	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:390:ALA:HB1	1:K:399:GLU:HG3	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 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	570/585 (97%)	555 (97%)	15 (3%)	0	100	100
1	B	570/585 (97%)	557 (98%)	13 (2%)	0	100	100
1	J	570/585 (97%)	560 (98%)	10 (2%)	0	100	100
1	K	569/585 (97%)	561 (99%)	8 (1%)	0	100	100
2	E	199/745 (27%)	196 (98%)	3 (2%)	0	100	100
2	I	632/745 (85%)	604 (96%)	28 (4%)	0	100	100
2	L	132/745 (18%)	129 (98%)	3 (2%)	0	100	100
2	U	632/745 (85%)	614 (97%)	18 (3%)	0	100	100
3	C	93/118 (79%)	84 (90%)	9 (10%)	0	100	100
3	G	97/118 (82%)	89 (92%)	8 (8%)	0	100	100
3	M	93/118 (79%)	88 (95%)	5 (5%)	0	100	100
3	Q	94/118 (80%)	86 (92%)	8 (8%)	0	100	100
4	D	86/96 (90%)	81 (94%)	5 (6%)	0	100	100
4	H	94/96 (98%)	88 (94%)	6 (6%)	0	100	100
4	N	87/96 (91%)	87 (100%)	0	0	100	100
4	T	87/96 (91%)	83 (95%)	4 (5%)	0	100	100
5	F	7/18 (39%)	6 (86%)	1 (14%)	0	100	100
5	O	4/18 (22%)	3 (75%)	1 (25%)	0	100	100
5	S	7/18 (39%)	7 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
6	R	79/108 (73%)	76 (96%)	3 (4%)	0	100	100
6	V	80/108 (74%)	71 (89%)	9 (11%)	0	100	100
All	All	4782/6446 (74%)	4625 (97%)	157 (3%)	0	100	100

There are no Ramachandran outliers to report.

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 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	492/502 (98%)	492 (100%)	0	100	100
1	B	492/502 (98%)	492 (100%)	0	100	100
1	J	491/502 (98%)	491 (100%)	0	100	100
1	K	491/502 (98%)	491 (100%)	0	100	100
2	E	189/681 (28%)	189 (100%)	0	100	100
2	I	585/681 (86%)	585 (100%)	0	100	100
2	L	127/681 (19%)	127 (100%)	0	100	100
2	U	585/681 (86%)	585 (100%)	0	100	100
3	C	87/103 (84%)	87 (100%)	0	100	100
3	G	87/103 (84%)	87 (100%)	0	100	100
3	M	87/103 (84%)	87 (100%)	0	100	100
3	Q	84/103 (82%)	84 (100%)	0	100	100
4	D	80/85 (94%)	80 (100%)	0	100	100
4	H	85/85 (100%)	85 (100%)	0	100	100
4	N	81/85 (95%)	81 (100%)	0	100	100
4	T	81/85 (95%)	81 (100%)	0	100	100
5	F	6/14 (43%)	6 (100%)	0	100	100
5	O	1/14 (7%)	1 (100%)	0	100	100
5	S	6/14 (43%)	6 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
6	R	70/90 (78%)	70 (100%)	0	100	100
6	V	70/90 (78%)	69 (99%)	1 (1%)	62	80
All	All	4277/5706 (75%)	4276 (100%)	1 (0%)	100	100

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

Mol	Chain	Res	Type
6	V	51	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (42) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	81	HIS
1	A	121	GLN
1	A	190	GLN
3	C	42	GLN
4	D	108	ASN
1	B	81	HIS
1	B	300	ASN
1	B	415	GLN
1	B	457	GLN
1	B	538	ASN
2	I	225	ASN
2	I	284	ASN
2	I	318	HIS
2	I	332	GLN
6	R	60	GLN
1	J	84	GLN
1	J	148	GLN
1	J	201	GLN
1	J	427	GLN
1	J	529	ASN
1	J	537	HIS
1	K	24	ASN
1	K	84	GLN
1	K	148	GLN
1	K	153	HIS
1	K	190	GLN
1	K	300	ASN
1	K	394	HIS

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Mol	Chain	Res	Type
1	K	407	HIS
1	K	425	ASN
1	K	427	GLN
1	K	486	ASN
4	T	51	GLN
4	T	58	ASN
2	U	36	ASN
2	U	73	HIS
2	U	279	HIS
2	U	332	GLN
2	U	377	ASN
2	U	497	GLN
2	U	531	GLN
2	U	581	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 8 ligands modelled in this entry, 8 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

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.